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ABSTRACT

This field-oriented guide is designed to assist college personnel, particularly those involved with two-year occupational programs, in the planning and evaluation of curricula. The guide consists of four parts. Part I, the Checklist, is divided into seven sections (program identity, articulation, resources, students, employment, support, evaluation) representing factors to be considered in planning or evaluating a course or program. Each section presents numerous questions to be answered in the planning/evaluation process, and provides references to aids in answering the questions found in Part IV. Part II explains the use of the Checklist, including the generation of objectives for evaluation. Part III covers the development of a strategy for answering Checklist questions and describes the mechanics of the process. Part IV presents aids for answering specific Checklist items, including briefs, references, forms, worksheets, and questionnaires. (JDS)

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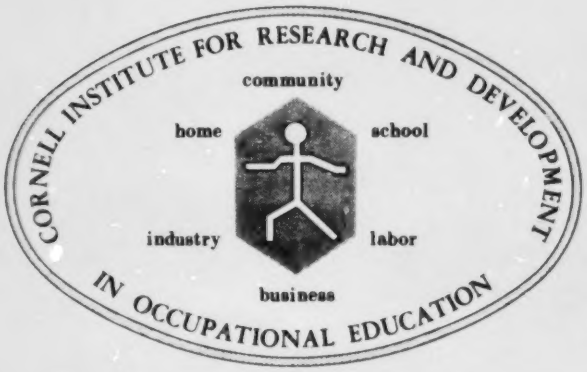
CURRICULAR DECISION MAKING IN OCCUPATIONAL EDUCATION : A Procedural Checklist and Guide

by

Albert E. Beilby, Research Associate
Luene Corwin, Research Assistant



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The key to any successful project lies with secretarial/typists. Suzanne Burns and Phyllis York contributed substantially to this task, but special thanks goes to Madeline Dean who did an outstanding job with dreadful copy.

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INTRODUCTION

Purpose

This document results from the third and final year of a project funded by the New York State Education Department through the New York State College of Agriculture and Life Sciences at Cornell University. It is in essence a field-oriented guide to assist college personnel--particularly those involved with two-year occupational programs--in the planning and evaluation of curricula.

Organization

This volume is built around the planning/decision System developed during the first two years of the project. The System was presented in its final form in the more scholarly work resulting from the project's second year.[1] The serious investigator will want to examine that work. Major elements of the planning/decision System are presented in Part I of this volume, "The Checklist." The rationale for reprinting that segment from the earlier work has three bases: 1) The initial printing was small; 2) use of new material in this document is contingent upon use of those System elements; and, 3) the System was favorably received by college personnel. Having all essential work documents in one volume should facilitate use of the System.

Other sections in this volume include a discussion of how to use the planning/decision System for evaluating curricula (Part II: Use of Checklist for Evaluation), a procedure for addressing Checklist questions (Part III: Developing a Strategy for Answering Checklist Questions), and finally, a collection of resources which may assist the investigator to answer specific questions from the Checklist (Part IV: Aids).

Using the Document

Some planners will want to begin the planning process immediately by using the Checklist (Part I) and the Aids (Part IV) while ignoring the rest. Parts II and III are included because of problems encountered during field tests of the System, and they should not be lightly dismissed.

Part II discusses use of the Checklist for evaluation purposes including the generation of objectives for evaluation. Since the Checklist is not specifically directed toward evaluation, more creativity is required to use it for that purpose. Field tests have shown that guidance is

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[1] Posner, G., Egner, J., Hedlund, D., Young, R. and others. Program Planning in Two-Year Colleges: A Handbook. New York State Education Department and New York State College of Agriculture and Life Sciences, Ithaca, New York, 1975. (ERIC Document No. ED 112 957)

frequently required in order for college personnel to recognize the utility of the Checklist for evaluation. Part II provides such guidance, and the reader who plans to use the Checklist for evaluative purposes should read that section.

Part III is included in this document because, during field tests, project staff found that college personnel who attempted to use the Checklist would often focus so intently on answering specific questions that they lost sight of the need to consider how to answer the questions. It was observed that planners who took the time to familiarize themselves with the approach contained in Part III, were able to identify a strategy for information gathering which expedited and consolidated subsequent efforts. Planning should be logical and systematic in order to achieve an optimal solution. Part III provides a logical, systematic way for viewing each Checklist question.

Time

With so many demands on faculty and administrators, the question arises, "Is this document worth your time?" Two responses are offered to that question, both came from participants in workshops in which the planning/decision System was disseminated.

One participant stated that their college followed a program planning procedure of only ten questions. Yet, because the questions were so broad, planners had to fill in gaps with sub-questions and procedures. When all was said and done, the twenty pages of questions in the Checklist did not add to the planning time required, and would probably save time, because the questions in the Checklist had to be considered anyway. The fact that, the questions are all spelled out saves time.

Another participant said that when he looked back at all the hours of meetings spent on identifying questions and information needs and deliberating on how to assign task forces to collect data, he saw how much of that time could have been saved if they had just had the Checklist.

It will take time to read this document, but it should save time later.

PART I - THE CHECKLIST

The Checklist is reprinted with minor modifications, from Program Planning in Two-Year Colleges: A Handbook, the project's 1975 report. It is intended to assist in planning or evaluating a course or program and will provide the planner/evaluator with cues concerning topics which may be incorporated in a proposal or an evaluation. It is in inquiry form, where a topic is identified and then amplified by way of a question. A numbering system is also incorporated in the Checklist. The numbering system is intended to facilitate identification of questions and to demonstrate their relationships.

Mechanics

The Checklist and numbering system are illustrated in Figure 1, in which a portion of "Identity", one of the seven Checklist Sections, is illustrated. As shown in Figure 1, the Checklist is arranged by topics with each *Section* sub-divided into *Major Topic Areas*, *Topics* and *Subtopics*. Each *Topic* and *Subtopic* is expanded by a question. The Identity Section is numbered 100. Other Sections are numbered 200, 300, ...700. Major Topic Areas are given the next level of numbers, i.e., (for Identity) 110, 120, 130, etc. Topics are indicated by numbers which end with units, i.e., 111, 112, 113, etc., and Subtopics are noted by decimals.

"Identity" refers to the general content of the program; therefore, the topics and questions which comprise that Section are directed toward describing the course or program and its content. To describe the "Identity" of the course or program being considered, three Major Topic Areas are identified in the Checklist; a portion of one of these--"Philosophy and Goals"--is contained in Figure 1. The procedure for producing a philosophy/goals statement is to answer Topic questions 111 and 112 (also questions 113 and 114--not shown in Figure 1) and synthesize those answers into a statement. Responses to Subtopic questions may be synthesized to answer Topic questions.

Interrelationships between questions are indicated when a number immediately follows a question. If a number is cited in this manner, it indicates that the response to the referenced question is likely to influence the response to the question being considered. For example, in Figure 1, the first question *"What are the major purposes of the program?"* is followed immediately by a number: 521. The response to item 521 may very well influence the response to item 111.

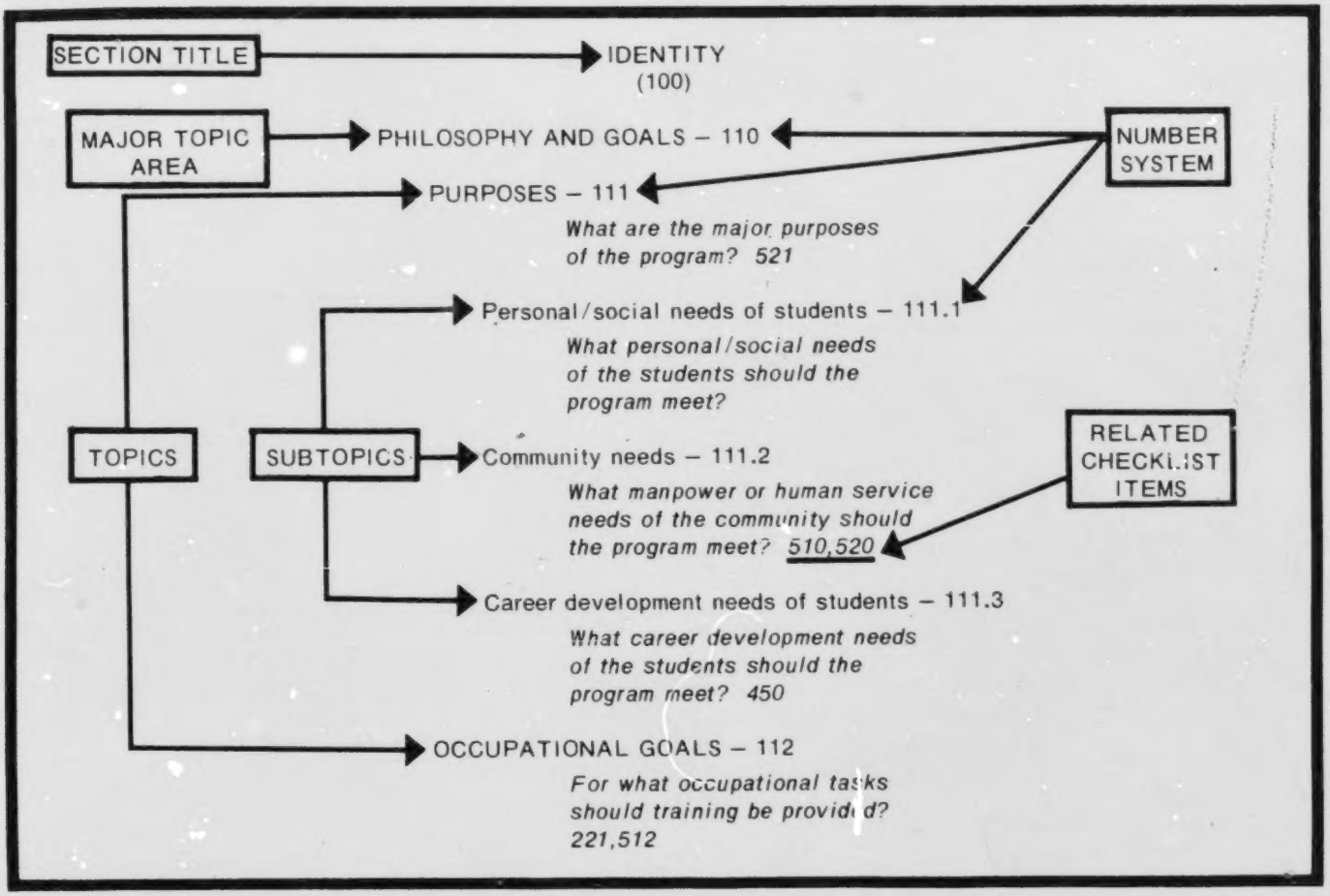
SECTION TITLE
IDENTITY
(100)
MAJOR TOPIC AREA
PHILOSOPHY AND GOALS – 110
NUMBER SYSTEM
PURPOSES – 111
What are the major purposes of the program? 521
Personal/social needs of students – 111.1
What personal/social needs of the students should the program meet?
TOPICS
SUBTOPICS
Community needs – 111.2
RELATED CHECKLIST ITEMS
What manpower or human service needs of the community should the program meet? 510,520
Career development needs of students – 111.3
What career development needs of the students should the program meet? 450
OCCUPATIONAL GOALS – 112
For what occupational tasks should training be provided? 221,512

FIGURE 1. Checklist, Sample Page

Using the Checklist for Planning

Part II discusses in some detail the use of the Checklist for evaluation and for generating objectives. Using the Checklist for planning is a fairly straightforward affair. However, some general observations regarding its use will be made here. Three points will be stressed:

1. One may enter the Checklist at any point desired.
2. The Checklist reflects a systems approach to planning and should be used in a dynamic, non-linear fashion.
3. One need not answer every Checklist question.

Normally planners have a fairly good notion regarding the general nature of the course or program being considered; therefore, starting at the beginning of the Checklist with the Identity Section may not be very profitable. It may be more profitable to begin investigating another Section such as Employment or Resources to determine if graduates of the

course/program are likely to get a job, or to determine if funds are available for the program. *The planner should decide which of the Checklist Sections are most meaningful and begin there.* A brief description of each Section may be found beginning at the bottom of this page.

Regardless of where one starts their investigation to determine whether a program should be proposed or implemented they will eventually be directed to other Sections. This occurs because the Checklist reflects a systems approach in which relationships between various topics are identified. These relationships are identified through the numbering system. For example, in Figure 1, the relationships between 111 and 521 and between 111.2 and 510, 520 is identified. A response to a question may lead to modification of an earlier response to another question. Thus an iterative process--one of the characteristics of the systems approach--is built into the Checklist. *The process allows the planner to refine various statements as new information is collected without regard for the sequence in which questions are listed.* The iterative process results in stronger proposals for program/curricular design.

Not all Checklist questions need to be answered. All the questions should be considered, but that may be a simple matter of reading the question and deciding it's relative importance. Many people would chose not to answer question 111.1, since personal and social needs of students are difficult to identify and incorporate. On the other hand, that question may be central to other planners. *Only those questions which have relevance and utility should be answered.*

The Checklist

The Checklist is printed on the yellow stock which immediately follows this section. It differs from Figure 1 in one detail. Added to the right of the Checklist is a column which identifies aids (to be found in Part IV)that may be useful in answering the questions. If an aid is provided in Part IV, it, and the page number, will be identified in the "Aids" column.

Aids are of four types. They may be checklists, references, worksheets, or survey forms. If no aid is provided, it may be because an answer to the question is heavily dependent on the subject matter of the course or program being considered. It may also be that an answer to the question will be based on personal judgment. Occasionally, the need for, or the intent of, a question may be ambiguous. When this is perceived to be the case, the question is amplified in the "Aids" column.

The Checklist consists of seven Sections which are described below by way of a definitional question.

"Identity	100	What would be the general content of the program?
Articulation	200	Does the program fit college, local, regional and state plans?
Resources	300	Does the college have the resources to conduct the program?

Students	400	How many and what kinds of students will the program attract?
Employment	500	Will the graduates of the program be able to obtain jobs commensurate with their training?
Support	600	Will the program be supported within the college and community?
Evaluation	700	How will the program be evaluated?"

(Posner, et al., 1975, p.17)

IDENTITY
(100)

PHILOSOPHY AND GOALS - 110

AIDS

PURPOSES - 111

What are the major purposes of the program? 521

Brief - p. 39

Personal/social needs of students - 111.1

What personal/social needs of the students should the program meet?

Brief - p. 40

Community needs - 111.2

What manpower or human service needs of the community should the program meet? 510, 520

Checklist of Human Service Needs - p. 42
References - p. 43

Career development needs of students - 111.3

What career development needs of the students should the program meet? 450

i.e., What will give graduates a competitive edge for career advancement?

OCCUPATIONAL GOALS - 112

For what occupational tasks should training be provided? 221, 512

References - p. 44

GENERAL EDUCATION GOALS - 113

What general education goals should be met by the program? 221

General Education refers to supplementary, non-occupational subjects.

What personal, social, or occupational goals of the student should be met by general education?

	AIDS
PROFESSIONAL GOALS - 114	
What are the professional goals of the program? 221, 510	No Aids (determined by content)
Accreditation and licensure - 114.1	
Should the program meet accreditation or licensure criteria of any institution or organization?	No Aids (determined by content)
Certification - 114.2	
Should the graduates of the program be prepared to pass certification tests? 512	No Aids (determined by content)
Entry tests - 114.3	
Should the graduates of the program be prepared to pass entry tests for any occupations?	No Aids (determined by content)
Advanced Degrees - 114.4	
Should the graduates of the program be prepared to enter other institutions which offer more advanced degrees? 213.1	See Worksheet, p. 64
CURRICULUM - 120	
EXPECTATIONS FOR ENTERING STUDENTS - 121	
450	
Knowledge - 121.1	
What areas of knowledge are entering students anticipated to know?	Brief, References p. 45
Competencies - 121.2	
What competencies are entering students expected to have?	
Attitudes and values - 121.3	
What attitudes and values are entering students expected to have?	Brief, Checklists, References pp. 46-47

INTENDED LEARNING OUTCOMES - 122	AIDS
What are the intended learning outcomes of the program?	No Aids (determined by content)
Knowledge - 122.1	
What are the major areas of knowledge that need to be taught in the program?	
Competencies - 122.2	Brief, Checklist, References pp. 48-51
What are the major types of competencies that need to be acquired in the program?	
Attitudes and values - 122.3	
What attitudes and values need to be fostered in the program?	Brief, Checklist, References pp. 46-47
COURSES - 123	
What courses will comprise the program? 450	No Aids (determined by content)
Requirements - 123.1	
What specific courses will be required?	No Aids (determined by content)
Electives - 123.2	
What electives might complement the occupational goals of the program?	No Aids (determined by content)
What electives might meet the personal or social needs of the students?	No Aids (determined by content)
Remedial work - 123.2	
If students entering the program do not have the expected knowledge, skills or attitudes, will remedial work, tutoring, and/or academic counseling be available? 452, 453, 455, 456	No Aids

INSTRUCTIONAL PLAN - 130	AIDS
311, 314, 321.1, 322, 430, 450, 624	
GENERAL TEACHING STRATEGIES - 131	Brief - p. 52
For knowledge - 131.1	
What teaching strategies will be used to cover the major areas of knowledge?	Checklist, References pp. 52-54
For competencies - 131.2	
What teaching strategies will be used to develop competencies in occupational tasks? (Such strategies might include field experience, laboratory work or cooperative education.)	Checklist, References p. 55
For attitudes and values - 131.3	
What teaching strategies will be used to instill or develop the desirable attitudes and values?	Brief - p. 56
SPECIAL TEACHING STRATEGIES - 132	
Will any special teaching strategies be used in the program?	See Aids for 132.3
Internships and labwork - 132.1	
Does the program include internships, extensive laboratory work, or field experience?	No Aids
Cooperative education - 132.2	
Does the program include copperative education or work study experience?	No Aids
Modular curriculum - 132.3	
Will the curriculum be written in modular form? Will the teaching strategy include modular scheduling?	References - pp. 57-58

ARTICULATION
(200)

EXTERNAL PLANNING CONSIDERATIONS - 210	AIDS
STATE LEVEL - 211	
Is the program congruent with various Master Plans?	Brief, References - pp. 59-62
REGIONAL LEVEL - 212	
Is the program congruent with plans and programs of other institutions in the area? 112, 113, 114, 530	References, Worksheet - pp. 63-64
Regional Planning Councils - 212.1	
Is the program in accordance with any Regional Councils' considerations? (Such councils might include the Occupational Planning Council, or the Appalachian Regional Council.)	No Aids
BOCES - 212.2	
Does the program complement or conflict with BOCES programs and plans?	See Worksheet, p. 64
Other institutions in the areas - 212.3	
Does the program complement conflict with programs at private colleges and proprietary institutions in the area?	References - p. 63 See Worksheet - p. 64
MATRICULATION - 213	
To what extent is matriculation to and from other institutions desirable?	See Worksheet - p. 64 References - p. 65

	AIDS
Exiting from program - 213.1	
Will students graduating from this program be able to matriculate at other institutions for advanced degrees? 114.4	See Worksheet - p. 64
Entering program - 213.2	
Will students from pre-college occupational programs be able to matriculate in this program?	See Worksheet - p. 64
INTERNAL PLANNING CONSIDERATIONS - 220	
INTENTS AND PURPOSES OF THE COLLEGE - 221	
Is the program congruent with the authorization, pruposes and objectives of the college?	No Aids
EXISTING PROGRAMS - 222	
Does the program complement or conflict with existing programs at the college? 332	Worksheet - p. 66
Program modification or deletion - 222.1	
Will the program replace or incorporate any existing programs of the college?	Worksheet - p. 66
Participation in other programs - 222.2	
In which courses outside the program are students likely to enroll?	Worksheet - p. 66
Influx from other programs - 222.3	
Which of the courses in this program might draw students who would normally take courses in other programs?	Worksheet - p.66 (See Worksheet - p. 83)
PROJECTED PROGRAMS - 223	
Does the program complement or conflict with proposed or projected vocational programs of the college?	No Aids

RESOURCES
(300)

FRAME FACTORS - 310

PERSONNEL QUALIFICATIONS - 311

What educational, personal and work qualifications should the faculty for this program have? 123, 130

CLASS SIZE - 312

What is the maximum class size possible for implementing the program's chosen teaching strategies? 123, 130, 420

FACULTY-STUDENT RATIO - 313

What is the minimum faculty-student ratio necessary for this program? 123, 130

TIME - 314

Does the design of the program precipitate time limitations or scheduling problems? 134, 130, 430

Intact blocks of time - 314.1

Does the use of labs or studio courses suggest the use of extended period schedules?

Alternating semesters - 314.2

Does the incorporation of cooperative education experiences suggest students will alternate semesters of work and study and courses will be offered in alternate semesters?

AIDS

Determination of Frame Factors is dealt with on pp. 69-71

Individual Checklist Items are not keyed to pages 69-71 although all are considered.

Readers are encouraged to use this Checklist Section as an overview of items to be considered, but actual implementation may be done through the AIDS provided in Part IV.

References relevant to this Checklist Section are listed on page 81.

Modular instruction - 314.3

Does the incorporation of modular units suggest the need to restructure course schedules within semesters?

INITIAL CAPITAL INVESTMENT - 315

Does the program require a substantial capital investment by the college? 123

Buildings and space - 315.1

Does the program require new buildings or specialized facilities for housing?

Equipment and materials - 315.2

Does the program require costly equipment or materials for instruction?

SUPPORT SERVICES - 316

Does the nature of the program require the addition of specialized support services?

Counseling - 316.1

Does the nature of the program suggest the need for additional counseling services? 450

Placement - 316.2

Does the nature of the program suggest the need for special placement services? 111.3, 540

Financial aid - 316.3

Will the program attract a student population that requires special financial aid services? 450

AIDS

See comments on page 13.

Remedial work - 316.4

Will the program require the support of remedial education services? 450, 123.3

Clerical - 316.5

Will the program require additional clerical support?

AIDS

See comments on page 13

COSTS - 320

PERSONNEL COSTS - 321

What will be the cost of additional personnel for the program or the college?

Worksheets to compute costs are provided on pages 72-77. Individual Checklist Items are not keyed to those pages although all are included.

Administration - 321.1

What, if any, will be the cost of additional administrative personnel?

The Checklist provides an overview of cost items. Pages 72-77 are provided for actual computation.

Faculty - 321.2

What will be the cost of new faculty for the program? 123, 130

Support staff - 321.3

What will be the cost of additional support staff required by the program? 111.1, 450

counseling staff - 321.31

What will be the cost of additional counseling staff and services?

placement - 321.32

What will be the cost of additional placement staff and services? 540

AIDS

financial aid - 321.33

What will be the cost of additional financial aid staff and services?

See comments on page 15

library staff and services - 321.34

What will be the cost of additional library staff and services? 123

remedial services - 321.35

What will be the cost of additional remedial teachers and services? 123.3

clerical - 321.36

What will be the cost of additional clerical services?

PHYSICAL COSTS - 322

What will the program costs be for physical resources? 130

Space and buildings - 322.1

What will be the cost of space and buildings for housing the program? Consider the long-term depreciation of debt. 123

(See Tables pp. 79 & 80)

Equipment and materials - 322.2

What will be the cost of equipment and materials for the program, e.g., furniture, lathes, laboratory equipment, etc.? Consider long-term depreciation of debt. 123

Operating costs - 322.3

What will be the on-going operating cost for the program, e.g., electricity, mimeographing, etc.?

REVENUE - 330

AIDS

FUNDS - 331

450

Worksheet on which to report revenues is provided on page 78.

Federal funds - 331.1

Can a grant be obtained for the program? What costs would it cover?

State and regional funds - 331.2

Can special state or regional funds be obtained to defray program expenses?

Local funds - 331.3

What special local funds are available to defray program expenses? Are new bond issues feasible?

Private foundation funds - 331.4

What private foundation grants can be obtained for the program? What costs would they cover?

FTE funds - 331.5

What is the revenue per Full-Time Equivalent (FTE)? (See FTE calculation discussion in the Students subsystem.) 423, 433, 434

(See Worksheet - p. 83)

special FTE funds - 331.51

Can the program draw additional state or regional FTE funds because it is oriented to a special group of students? 451.2, 452, 453, 456

FTE funds available to department - 331.52

What proportion of the FTE funds will be available to the sponsoring department of the program?

AIDS

Gifts and bequests - 331.6

Have local individuals or agencies offered gifts to the program? Have they offered to bequeath funds to the program? (If applicable, add maintenance costs to costs section.)

Worksheet on which to report revenues is provided on page 78.

OTHER RESOURCES - 332

What other resources may be available? 212, 222

(See Worksheet - p.66)

Modification of existing programs - 332.1

Are resources available for the program through the modification of existing programs? 412

(See Worksheet - p. 83)

Shared personnel - 332.2

Are resources available through the sharing of faculty and support staff with other departments and programs?

Shared facilities - 332.3

What shared outside facilities and services can be used to defray costs for the program? (Are industry laboratories or BOCES facilities available? Are consortium efforts feasible?)

STUDENTS (400)

AIDS

STATUS - 410

NEW STUDENTS - 411

How many new students will the program attract to the college?

INTERNAL TRANSFERS - 412

How many current students are expected to transfer into the program from other programs at the college? 332.1

CONTINUING AND RETURNING STUDENTS - 413

How many students are expected to return to the college to enroll in the program?

SPECIAL STUDENTS - 414

Are any special or extramural students expected to enroll in the program?

All items relating to "Status" are included on Worksheet p. 83.

EXPECTED ENROLLMENT - 420

FULL-TIME - 421 623

How many students are expected to participate full-time in the program each year?

New - 421.1

How many full-time students are enrolling for the first time?

Continuing - 421.2

How many are continuing or returning students?

All items relating to "Expected Enrollment" are included on Worksheet - p. 83.

AIDS

PART-TIME - 422

How many students are expected to participate part-time in the program each year?

See comment p. 19
Re: 420 Items

New - 422.1

How many part-time students are enrolling for the first time?

Continuing - 422.2

How many are continuing or returning students?

EXPECTED FTE - 423

Corsidering the expected full-time and part-time enrollment, what are the minimum and maximum estimated FTE per semester?
331.5

ATTENDANCE PATTERNS - 430 *132, 314*

TIME AND DAYS OF ATTENDANCE - 431

How many students are expected to attend during the day, evening, or weekends?

All Items relating to "Attendance Patterns" are included on worksheet, p. 83.

REGULARITY OF ATTENDANCE - 432

How many students are expected to alternate periods of attendance with periods of non-attendance?

ATTRITION - 433

How many students are expected to withdraw from the program before completion?

References - p. 87

IMPACT ON FTE - 434

Will varying attendance patterns substantially affect the FTE per semester?

AIDS

GRADUATION - 440

How many students will graduate from the program each year?

Worksheet - p. 84

SPECIAL STUDENT CONSIDERATIONS - 450

121, 130, 331

All Items relating to "Special Student Considerations" are addressed in Worksheet - p.84.

RESIDENCE - 451

Will the residence of enrolling students affect the program? 510

In-district - 451.1

How many students from the district are expected to enroll in the program?

References - p. 87

Out-district - 451.2

How many students from other districts are expected to enroll in the program? Does the local district have chargeback arrangements with other districts?

References - p. 87

SOCIO-ECONOMIC STATUS - 452

Does the program expect to attract students from a particular economic background? What background and how many students?

ETHNIC BACKGROUND - 453

Is the program expected to attract students from a particular ethnic background? What background and how many students?

SEX - 454

What proportion of each sex is the program expected to attract?

AIDS

AGE - 155

What age range is expected among the enrollees? Is a particular age group desired?

Worksheet - p. 84

OTHER CHARACTERISTICS - 456

What other characteristics are desired or expected in the enrolling students, e.g., physically handicapped, veterans, students with previous degress, etc.

Worksheet - p. 84

NOTE: In addition to the worksheet (pp. 83-84) examples of survey forms are given on pages 85-86. References are provided on page 87.

EMPLOYMENT
(500)

AIDS

MARKET DELINEATION - 510 *114, 451, 212*

A brief review of Manpower Analysis and Projections is given on pages 88-92.

GEOGRAPHICAL REGION OF INTEREST - 511

What is the geographical boundary of the market of interest? What is the expected geographical distribution of graduates seeking entry into the work force?

Most references for this section are given on pp. 96-97.

OCCUPATION OF INTEREST - 512

For what occupational roles will the program prepare students? Are there special requirements for employment in the field; e.g., certification or health requirements? 112, 114.2

Worksheet References - p. 93

MARKET OF INTEREST - 513

What facts are known about the market of interest?

No Aids

Future trends - 513.1

What future trends may be reasonably assured?

Brief, p. 93

Detail of analysis - 513.2

Given the definition of the market of interest, what level of market estimation is required: e.g., how detailed should the market analysis be?

No Aids

AIDS

DEMAND FACTORS - 520 *440*

POSITIONS AVAILABLE - 521

How many identifiable positions are available in the region of interest at the moment? — Worksheet - p. 94

FUTURE POSITIONS AVAILABLE - 522

What are the optimistic and pessimistic market projections for the future? — Worksheet - p. 94

EMPLOYABILITY - 523

What proportion of graduates will be able to find employment in the market of interest? — Worksheet - p. 94

MOBILITY - 524

What proportion of graduates will pursue further education or leave the region of interest? — Worksheet - p. 94

SUPPLY FACTORS - 530 *212* — Brief - p. 95

GRADUATES PER YEAR - 531

How many graduates are released from colleges to this market each year? What are the projected graduation rates in these colleges for the occupation of interest? — No Aids

EMPLOYABILITY - 532

How many of these graduates have been unable to find employment in the field? Why? — No Aids

VALIDATING AND PROMOTING - 540 *316.2, 321.32, 624* — Brief - p. 95

AIDS

VALIDATION - 541

Which employers intend to employ graduates?

See Brief - p. 95

Number employable - 541.1

How many per year?

Salaries - 541.2

With what median and/or modal starting salaries?

Positions - 541.3

In what positions?

Advancement - 541.4

With what prospects for advancement?

PROMOTION - 542

What are the prospects for influencing the market?

Activities tried - 542.1

What promotional activities have been tried and with what results?

Others - 542.2

What other activities or contacts could be explored?

SUPPORT
(600)

AIDS

INTERNAL SUPPORT - 610

GENERAL INTERNAL SUPPORT - 611

Brief - pp. 98-100

Worksheet - p. 101

To what extent do administrators, faculty and students have positive or negative opinions about the program?

SPECIFIC LEVELS OF SUPPORT - 612

What groups within the college support or are committed to the program?

All "612" Items are addressed in Worksheet p. 101

Advisory committee - 612.1

Is there a specific commitment to the program by the program advisory committee?

College curriculum committee - 612.2

Does the college curriculum committee approve and support the program?

Faculty involved in the program - 612.3

Is there commitment to the program from faculty who will be directly involved with the program?

Administrators - 612.4

Is there commitment to the program from the academic dean, the president, or other administrators who will be directly or indirectly responsible for the program?

AIDS

EXTERNAL SUPPORT - 620

GENERAL EXTERNAL SUPPORT - 621 — Worksheet - p. 102

Is there support or opposition to the program from other institutions in the region? 212

FINANCIAL SUPPORT - 622

Is there financial support for the program? 320, 330 — (See Worksheet - p. 78)

STUDENT SUPPORT - 623

Will sufficient numbers of students enroll in the program? 420 — No Aids

SUPPORT FROM EMPLOYERS - 624

Are employers planning to provide jobs for graduates? 111.2, 541 — Worksheet - p. 103

Will a sufficient number of employers participate in any work study, field work, or internship aspects of the program? 130

COMMUNITY SUPPORT - 625

Is there community support for the program from organizations, agencies, unions or other local groups? 111.2 — Worksheet - p. 104

EVALUATION*
(700)

AIDS

PURPOSE - 710

RATIONALE - 711

Why is the evaluation being done? How will it be used? — Brief - p. 105

Nature - 711.1

Is the evaluation of formative or summative nature? — Brief - p. 106

Focus - 711.2

What is the focus of the evaluation? — Brief - p. 106

AUDIENCE - 712

To whom will the evaluation be directed? Who will make decisions based on the evaluation? — Brief - p. 107

Purpose - 712.1

What is the administrative interest of the audience? How might they use the evaluation? — Brief - p. 107

Level - 712.2

What is the administrative level of the audience? What detail will be required? — Brief - p. 107

PERSONAL INTERESTS - 713

What questions do you want the evaluation to answer?

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*Unlike preceding checklist sections, this section does not appear in this form in Program Planning in Two-Year Colleges: A Handbook

NOTE: Brief Introduction is given in Part IV - p. 105.

AIDS

CRITERIA/STANDARDS/INDICATORS - 720

CRITERIA - 721

What criteria will be used to to describe and/or judge the course or program?

Brief - p. 108

STANDARD - 722

What standards will be used to describe achievement of criteria?

Brief - p. 108

INDICATORS - 723

What will be accepted as evidence of satisfactory attainment of standards?

Brief - p. 108

METHODOLOGY - 730

What methodologies will be used to execute the evaluation?

Brief and References for all 730 Items can be found on pages 108-109.

EVALUATOR - 731

Who will conduct the evaluation?

DATA TYPE - 732

Will "hard" data, judgemental data or both types of data be collected for the evaluation?

PLAN - 733

What is the evaluation plan?

Schedule - 733.1

What will be the schedule for the evaluation?

Amount of Data - 733.2

How much data will be collected?

Analysis - 733.3

How will it be analyzed?

REPORT - 734

How will results be reported?

PART II

USE OF THE CHECKLIST FOR EVALUATION

The Checklist may be used for two purposes: To plan for new curricula and to evaluate existing curricula. The use of the Checklist for evaluation is discussed here and its use for generating objectives suitable for either planning or evaluation is described. The Checklist is not an evaluation model, it is merely a useful tool to use in conjunction with an evaluation model in order to generate data for an evaluation.

The first step for any evaluation is to identify its purpose or rationale. There are many possible reasons for conducting an evaluation. They include:

You have to (to meet governmental agency requirements).
You want to (it's the "in" thing to do).
Low enrollment.
To keep content current (rapid change/increase in knowledge).
To reduce costs (to meet retrenchment constraints).
To improve effectiveness (dissatisfied with student achievement).
To improve efficiency of instruction (dissatisfied with organization).
To justify continued existence of a course (and to save your job).

Frequently, a rationale is simple to state; however, identifying elements upon which to focus the evaluation may be difficult. In such instances, the Checklist can be helpful. The comprehensive nature of the Checklist is such that mere perusal of it may help to identify course or program elements to include in an evaluation. The following examples may suffice to illustrate this use of the Checklist.

Example One: Because of a period of economic distress, retrenchment exists and demands are made for belt tightening and re-examination of costs. Obviously, a case exists for evaluation, the rationale for which might be "to reduce the costs of instruction".

A narrower focus for the evaluation may be identified after consulting the Checklist. In this example, the "Resources" Section of the Checklist would be a logical starting point since it relates to costs and revenues. Perusal of the "Resources" Section leads to question number 312: *"What is the maximum class size possible for implementing the program's chosen teaching strategies?"* This question suggests a possible area for cost savings which does not normally leap to mind: That teaching strategies may be instrumental in effecting cost savings by their influence on class size.

Adoption of a different teaching strategy could result in a cost savings through one of two ways. For example, if field trips are replaced by some other approach, or if a lab which consumes costly materials is modified so as to consume fewer resources, obvious cost savings are possible.

A less obvious type of cost savings associated with teaching strategies is the one implied by question 312, i.e., adoption of a new teaching strategy may allow class size to be increased. Increasing class size, while not a popular move, is one method used to decrease per student costs and to release faculty for other instructional duties. Although the total cost of a specific course may remain constant after a change in teaching strategies, more efficient use of resources may be realized or costs may be reduced elsewhere.

Potential efficiencies or cost reductions associated with alternative teaching strategies indicate that it may be desirable to evaluate the current teaching strategy and compare it with alternatives. At this point the evaluation rationale might be refined to: "To evaluate the cost of the existing instructional method and compare it with projected costs of alternative methods". A word of warning in this case: Instructional effectiveness should not be sacrificed for petty gains in efficiency; a more expensive strategy may be the most effective.

Example Two: Consider a situation wherein there exists a course not obviously related to employment opportunities, e.g., "Human Sexuality". In periods of economic stress, this type of course may be a candidate for elimination from the curricula. Consequently, instructors of such a course may become highly motivated to evaluate course outcomes. An obvious rationale would be: "To justify continued existence of the course (and to protect my job)". However, such a rationale is not normally considered in good taste. A more appropriate rationale would be "to identify and assess course outcomes." Most Checklist Sections contain elements which could contribute to the scope of such an evaluation. For example, Checklist question 111.2; *"What manpower or human service needs of the community should the program meet?"*, may bring a heretofore unrecognized issue to the attention of faculty: The importance of meeting a community's human service needs. Although a course may not contribute directly to getting jobs, graduates of the course may be benefiting the community in other, less obvious ways. A course in "Human Sexuality" may enhance an individual's counseling abilities and make available to the community individuals who could work with youth, or, the disadvantaged. The rationale in this case would be refined: "To determine the human service impact of the course on the community".

For evaluation, the Checklist is employed in much the same way as it is for planning: As a reminder or identifier of factors which may be important but which could be easily overlooked.

Objectives for Evaluation and Planning

Whether the Checklist is emp-oyed for evaluation or for planning, there is a need to develop clearly stated objectives.

It is possible to design a course or program with a minimal number of objectives. For example, consider again Checklist question 111.2: *"What manpower or human service needs of the community should the program meet?"*

During design of a course or program the designer may name some human service needs which the proposed curricula may meet. The designer has thus identified an objective without formally recognizing it as such. However, for evaluation purposes, the objective must be articulated. An example: "The course on Human Sexuality will be instrumental in supplying capable volunteer counselors to the community". This is an objective which can be evaluated, although controversy may result over what makes a counselor "capable" (and someone else may ask, "But is it behavioral?").

A second example of generating objectives from the Checklist may be derived from Checklist Item 411: *"How many new students will the program attract to the college?"* A response to this question during the design stage implies an objective. An evaluation would require its articulation, e.g., "The program will attract 20 $\pm$ 3 students to the college." This is an objective which can be readily evaluated.

Deriving objectives from Checklist questions is largely a matter of turning the questions into statements. Recognizing that this may be done is the enabling factor.

PART III

DEVELOPING A STRATEGY FOR ANSWERING CHECKLIST QUESTIONS

A worksheet, illustrated in Figure 2, has been developed to guide curriculum/program planners through the process of answering Checklist questions. The worksheet outlines a process which will help the user to develop a plan for answering the questions.

Question: _____
(No.) (Statement)

Refinement	Information Needed	Information Sources	How to Get Information	Answer

Figure 2, Worksheet for Answering Checklist Questions

Mechanics of the Process

Checklist questions are phrased in general terms in order that they may be applied to a wide variety of subject matter areas. The first step in the process, is to rephrase the question in terms of a specific course or program. Consider Checklist question 122: *"What are the intended learning outcomes of the program?"* In the second column of Figure 3 this question has been refined in order to address a proposed Culinary Arts Technology program for training chefs. The refined question is, *"What knowledge, competencies, attitudes, and values does a chef need?"* Reference to the Checklist will illustrate how subtopic questions 122.1, 122.2, and 122.3 have influenced re-wording of the question.

QUESTION REFINEMENT WORKSHEET

QUESTION: 122 (NUMBER) What are the intended learning outcomes of the program? (STATEMENT)

REFINEMENT	INFORMATION NEEDED	INFORMATION SOURCES	HOW TO GET INFORMATION	ANSWERS
What knowledge, competencies, attitudes & values does a chef need?	Functions generally performed by a chef (DOT 313. 131).	1. Dictionary of Occupational Titles, Vol. 1, U.S. Dept. of Labor. 2. Occupational Outlook Handbook, U.S. Dept. of Labor. 3. Advisory Committee	1. Librarian or Occupational Education institute. 2. Meet and discuss.	The program will enable persons to perform the functions of a chef: Supervisory, Planning, Preparing Foods, Meat Cutting

QUESTION: 122.2 (NUMBER) What are the major types of competencies that need to be acquired in the program? (STATEMENT)

REFINEMENT	INFORMATION NEEDED	INFORMATION SOURCES	HOW TO GET INFORMATION	ANSWERS
What competencies are needed to carry out the food preparation functions he/she is expected to perform?	Food preparation competencies Chef's need. Conditions for performing these competencies. Equipment need to carry out the competency. Frequency of performance of the competency. Relative importance of the competency to employers.	1. Advisory Committee. 2. Competency or task inventory prepared by experts. 3. Prospective employers. 4. Professional Chef's Association. 5. Employed chef.	1. Meet and discuss. 2. Librarian or Occupational Education institute. 3. Questionnaire to validate frequency of task performance. 4. Contact at local, state, or national level. 5. Observation and conversation.	Ability to prepare hollandaise sauce in quantity. Ability to store a large quantity of bread stuffing properly Ability to develop & test new recipes. Ability to receive food deliveries & check for quality and quantity, etc. Etc.

FIGURE 3: APPLICATION OF THE PROCESS TO DEVELOP A STRATEGY - CHECKLIST QUESTION 122

Having refined the Checklist question, the second step is to identify information needed to formulate an answer. To determine the knowledge, competencies, attitudes, and values needed by a chef it is first necessary to know what a chef does. In Figure 3, the information needed is described as "Functions generally performed by a chef."

The third step in the process is to identify sources which may provide the required information. Sources may be printed material, media, individuals, or associations and groups. In the example, two published works and an advisory committee are identified as sources which may describe functions generally performed by a chef.

The fourth step is determining how to obtain the information. Entries in the "How to Get Information" column do not need to be in the form of a detailed plan. In Figure 3, the method for obtaining information from the advisory committee is "Meet and discuss." Telephone conversations, letters, questionnaires, and observations are other ways to get required information from an advisory committee. Such spare descriptions serve a valuable function of identifying how needed information will be obtained. These descriptions are the final step in developing a strategy for answering a specific question.

The planner is now ready to utilize the plan he has developed. He will undertake the action listed in the "How to Get Information" column in order to reach "Information Sources" to obtain "Information Needed." This is likely to be a time consuming process. The amount of time and detail required will depend upon the question, its relationship to the total planning or evaluation process, and the level of the planning or evaluation effort.

The final worksheet column may be used to record the answer to the refined question. To formulate an answer it is often necessary to combine information from several sources.

In Figure 3, the answer given to question 122 is a general description of content area and intended learning outcomes; however, it is stated in terms too general to be final. When, as in this case, the answer is too general, greater specificity may be attained by repeating the process. However, two cases are possible which may call for slight variation when repeating the process. They are described below.

Case #1 - Existence of Sub-questions: If the answer obtained from working through the process is too general, and if there are sub-questions, then attention should be shifted to the sub-questions. The initial answer to the primary question will focus exploration of the sub-questions. The final answer to the primary question will result from synthesizing the original answer with the sub-question answers.

Question 122, for which there are three sub-questions, illustrates this case. Sub-question 122.2 is shown in Figure 3 where it is refined to address one of the four functions (preparing foods) identified in the initial response to 122. (The three remaining functions would be similarly treated.)

QUESTION REFINEMENT WORKSHEET (Culinary Arts Technology Program)

QUESTION: 131.2 (NUMBER) What teaching strategies will be used to develop competencies in occupational tasks? (STATEMENT)

REFINEMENT	INFORMATION NEEDED	INFORMATION SOURCES	HOW TO GET INFORMATION	ANSWER
What teaching strategies will be used to accomplish those learning objectives related to food preparation competencies?	Alternative ways of providing hands-on experiences.	Existing programs Educators in food service Advisory committee	Phone or visit Meet and discuss	Actual hands-on work in a commercial kitchen is the most effective teaching strategy. (See further refinement)
1) Is there a fully equipped commercial kitchen available for exclusive use on campus? If not, what is needed to provide one?	List of equipment needs for a fully equipped kitchen. Cost of the equipment if purchased new. Possible space allocations on campus and their cost	Existing programs Educators in food service Advisory committee Telephone directory for equipment firms College purchasing agent	Phone or visit	
2) Is it possible to reach the learning objectives with less than a fully equipped kitchen? What would be the minimum amount of equipment necessary?	List of minimum equipment needs	Existing programs Educators in food service Advisory committee	Phone or visit	
3) Is it possible to obtain equipment in some way other than purchasing it new?	Sources of equipment of lease Sources of equipment to buy used	Existing programs Educators in food service Advisory committee Telephone directory for equipment firms College purchasing agent	Phone or visit Current Index to Journals in Education or Research in Education	
4) Can the learning objectives be reached by sharing the equipment used by college cafeteria staff?	4a) Provisions of the contract between the food service operation and the college. 4b) Capital equipment depreciation provisions for the cafeteria equipment. 4c) Possibility of cafeteria staff and students working together cooperatively.	Dean of Administrative Affairs Cafeteria Manager Cafeteria employees Existing programs using a similar arrangement.	Phone or visit Open-ended interview Observation Community College-Academic Deans, BOCES Director of Occ.Ed., CHRIE (Ed. Organization)	
5) Are there off-campus commercial kitchens which may be available?	College policies concerning off-campus learning experiences. Possible available facilities (churches, lodges, etc.)	Dean of Instruction Division chairperson Church councils, etc. Professional Chef's Association.	Phone or visit	

FIGURE 4: DEVELOPING A STRATEGY TO ANSWER CHECKLIST QUESTION 131.2

The answers to all three sub-questions (122.1, 122.2, and 122.3) would be synthesized, along with the initial response to question 122, to form a statement fully describing the intended learning outcomes.

Case #2 - No sub-questions: When there are no sub-questions to assist in developing an answer beyond a general level, parts of the process are repeated based on the initial answer. Figure 4, shows how this situation may be treated. The portion below the dotted line indicates refinements of the question which were suggested by the initial response. The final answer to question 131.2 would describe the setting for the hands-on work as suggested by the further refinements. In all liklihood, the answer to 131.2 would not be finalized until questions in the Resource Section are answered.

Summary

In Case #1, above, emphasis is placed on answering a topic question in a general way in order to develop a focus for answering subtopic questions. In some cases it may be preferable to answer the subtopic questions first.

Many Checklist questions cannot be adequately answered until a question in another section has been answered, as was noted above in Case #2. Cross reference numbers at the end of a question or major topic statement will indicate these cases. When such relationships are shown, it may be helpful to work both questions simultaneously in order to deal with interaction.

Planners who have not previously utilized the Checklist are advised to develop worksheets and follow the above described process very closely. As they become more familiar with the process, the worksheet may be omitted.

PART IV

AIDS

This section contains material which is intended to assist Checklist users to answer the questions posed therein. The Aids are keyed to the numbering system of the Checklist. Normally, access to the Aids will be made through the Checklist (Part II).

Aids are of five types:

Briefs (explanatory notes or background information)
References
Checklists
Worksheets
Questionnaires

Concerning references, two items of information are offered here. First, the price of some references is given, however, this is usually when the price is either very low or very high. The price of other references, except government documents, may be obtained through your library's copy of Books-in-Print. State documents cited in Part IV are usually available for the asking. There may be a small charge for other government documents.

The second item of information concerns ERIC Document numbers cited for some references. These numbers indicate that the reference is readily available in microform or a hard-copy (produced through a dry-copy process) through the ERIC system. ERIC is a very valuable resource about which the college librarian will be able to provide information. Free computer searches of the ERIC System and free microfiche are available to New York educators through New York State Education Department, Educational Programs and Studies Information Service (EPSIS), Room 330, Albany, New York, 12234. Telephone: (518)474-3639.

AIDS: IDENTITY - 100

CHECKLIST ITEM 111

Purposes for a course or program may be described at two levels--a generic and a specific level. At the generic level, there are four valid purposes for a course or program:

1. To satisfy an expressed need of the community, e.g., pottery, dance, auto repair, etc.

2. To train individuals for specific occupations, e.g., secretary, auto mechanic, etc.

3. To teach concepts and competencies for business managers, e.g., farmer, grocer, garage owners

4. To teach concepts and competencies which enhance an individuals ability to function/compete successfully in society, e.g., English or math, service courses.

Expressed purposes for a course or program should also be specific. It is intended that a synthesis of the responses to Checklist Items 111.1, 111.2, and 111.3 will provide such a statement.

CHECKLIST ITEM 111.1

Identifying personal/social needs of students which might be addressed by a course or program has considerable merit, but it is difficult to do. The difficulty is largely due to the fact that the area of "needs" is not yet well conceptualized and validated. The following discussion is a brief treatment of what may be possible in the area of personal and social needs identification.

The most widely acknowledged conceptual framework for considering human needs was developed by A. Maslow in his book, Motivation and Personality. Maslow's need hierarchy identifies six "basic human needs". Figure 100-1 illustrates the hierarchy. Maslow suggests that individuals are motivated by attempting to fulfill these basic needs and that they must at least partially satisfy needs at the lower end of the hierarchy before they can devote much activity to fulfilling higher level needs.

Whether this theoretical view is "true" or not, it offers a needed referent for talking about needs and offers implications for course/program planning. Assuming Maslow's hierarchy is "true," it appears that most education is geared to upper level needs, i.e., esteem, self-actualization, and aesthetic. It also would appear to be safe to assume (in this society) that the basic needs i.e., physiological and safety, are already satisfied. Belongingness, a middle level need, is often assumed to be satisfied, but perhaps this assumption is unwarrented, particularily since teaching strategies which may encourage interaction and "belonging" can easily be incorporated into a course or program.

The problem which inhibits use of Maslow's scheme is the lack of validated assessment instruments to determine the extent to which an individual's needs have been satisfied or even whether the needs exist at all. It's difficult to identify strategies which might be used to enhance fulfillment of basic needs if these needs have not been validated; therefore, subjective judgment must be made about what is an appropriate strategy for the perceived "need". In the 1970 edition of his book, Maslow admits that his theory has been useful in a clinical and social way, but not in a laboratory and experimental way. Until such time that needs identification becomes more scientific, approaches to identifying and fulfilling needs will have to depend on heuristics--rules which appear to help but which have not been validated.

Figure 100-1, on the opposite page, illustrates Maslow's hierarchy.

AIDS: IDENTITY - 100

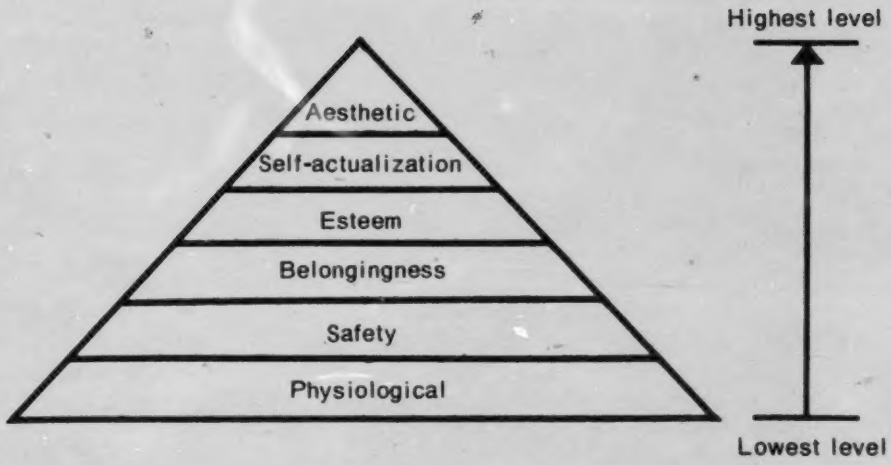

FIGURE 100-1 Maslow's hierarchy of basic human needs

CHECKLIST ITEM 111.2

HUMAN SERVICE NEEDS - A CHECKLIST

The following checklist is intended to remind planners of additional areas of justification for a course or program.

HEALTH RELATED

- First Aid
- Assistance to Elderly
- Immunization Programs
- Counseling/visiting handicapped and/or terminally ill
- Counseling/visiting "shut-ins"
- Nutrition

EDUCATION

- Literacy Volunteers
- Tutors
- Day Care Aides
- Special Education

EMERGENCY

- Ambulance Drivers/Volunteers
- Volunteer Firemen
- Law Enforcement

TRANSPORTATION

COUNSELING

- Elderly
- Youthful Offenders
- Economically Disadvantaged
- .
- .
- . etc.

YOUTH

- Recreation
- Clubs (4-H, Scouts)

SOCIO-POLITICAL

- Elected Officials
- Special Interest Groups/Clubs

Note: The above checklist represents only one way to organize areas of Human Service Need. Other organizations are just as legitemate.

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CHECKLIST ITEM 111.2 (contd)

COMMUNITY NEEDS:

Community needs may be the prime motivators for a course or program or they may be cited as additional justification for a course/ program.

Two references which provide background about community needs are:

McMahon, Ernest, E., "The Needs of People and The Needs of Their Communities," in David B. Rauch (Ed.), Priorities in Adult Education. (New York: Macmillan, 1972) pp. 25-50.

A general treatment about determining community needs. A good point of departure.

Warren, Roland L., Studying Your Community (New York: Russell Sage Foundation, 1955).

Contains many suggestions and checklists to facilitiate community analysis.

CHECKLIST ITEM 112

Many occupational tasks may be identified from personal knowledge or from acquaintances. However, if the planner is unfamiliar with the occupational areas, he/she may have to consult printed occupational descriptions. The following references are recommended:

GENERAL OCCUPATIONAL INFORMATION

U. S. Department of Labor. Dictionary of Occupational Titles. Washington, D. C.: U. S. Government Printing Office. (Revised periodically, most recent edition 1965; supplements in 1966, 1968.)

SPECIFIC OCCUPATIONAL INFORMATION

Fisk, Margaret (Ed.), Encyclopedia of Associations. Detroit: Gale Research Company. 10th Ed. 1976 (annual).

A comprehensive source of detailed information concerning non-profit American membership in Trade, Professional and other organizations of national scope. A basic guide to specific information. A "Switchboard" for making contact by phone or letter.

Associations organized by type.

Three volumes comprise the Encyclopedia:

Volume I:	National Organization of the United States. Price $55.00.
Volume II:	Geographic-Executive Index. Price $38.00.
Volume III:	New Associations - Periodic Reports in loose leaf form. Price $48.00.

AIDS: IDENTITY - 100

CHECKLIST ITEMS 121.1 AND 121.2

ENTERING KNOWLEDGE AND COMPETENCIES

In order to decide what knowledge and competencies students will be expected to have, it is useful to draw a brief sketch of the prospective student. Robert Mager and Kenneth Beach suggest some characteristics to consider when describing the target population (see reference).

At this time the planner may wish to begin a task analysis of the occupation, on which the program will focus. At this stage only a general description of the occupation is needed. Task Analysis is discussed in more detail in the "Aids" pertaining to Checklist Items 122.1 and 122.2.

REFERENCE

Mager, R. F., and Beach, K. M. Developing Vocational Instruction. Palo Alto: Fearon Pub., 1967. Chapters 2 and 4, pp. 7-10, 25-28.

CHECKLIST ITEMS 121.3 AND 122.3

Program/course planners should attempt to identify attitudes, values, and interests which would be desirable in the job for which training is provided. A checklist of Attitude and Values could be generated for each course/program.

No particular attitudes or values predict success, but some may be more supportive of the goals of a program or a profession. Likewise, some attitudes might prohibit a student from accepting the values of a profession. For example, a student desiring to run a day-care center would be seriously hampered by strong racial biases..

People form attitudes on the basis of what they believe. Students may be attracted to a profession on the basis of incorrect beliefs, insufficient information, or false stereotypes--either about the profession they plan to enter or about themselves as persons. It is important in program planning, then, for students to have the opportunity to "check out" the accuracy of their beliefs prior to committing either their energy or institutional resources. For example, a student entering a police science course might expect that much of a policeman's time is spent on self-defense and law, and be unaware that over 75% of an actual policeman's time is spent on activities that could better be described as social work and personal relations.

It is also important that a program provide an opportunity for students to be introduced to the attitudes of people already in a profession. In this way, the program can provide information that would help students develop more accurate beliefs and attitudes.

1. Methods to help students identity their own attitudes and/or help a program identify attitudes of prospective students:

   Personal Interviews
   Attitude Inventories, Scales, and Checklists (see references)
   Self-Descriptions
   Personal References
   Vocational Interest Scales (see references)

2. Methods for identifying attitudes held by members of a profession:

   Interviews with Practicing Professionals
   Observation of Practicing Professionals
   Attitude Inventories, Scales, and Checklists (see references)

3. Methods of fostering attitudes about professions:

   Students Observe Professionals
   Students Interview Practicing Professionals
   Students Interview Recipients of Professional Services
   Work-Study Experience
   Role Playing
   Simulations

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REFERENCES

The following references refer to compendiums of attitude and interest inventories, scales, and checklists which program planners can use to select a test instrument appropriate for the attitude and/or profession they want to examine. Each book describes a variety of test instruments and rates or discusses the properties of each.

1. Buros, Oscar. The Seventh Mental Measurement Yearbook. The Gryphon Press, 220 Montgomery Street, Highland Park, New Jersey, 08904. Copyright 1972.

   This volume is an extensive reference of attitude, aptitude, and achievement tests. It includes reviews of general vocational interests as well as instruments specific to various occupational fields.

2. CSE-RBS Test Evaluations: Tests of Higher Order Cognitive, Affective, and Interpersonal Skills (edited by Ralph Hoepfner, et al.). Center for the Study of Evaluation, Graduate School of Education, University of California, 405 Hilgard Ave., Los Angeles, California, 90024. Copyright 1972.

   Each test instrument is classified and then rated along seven criteria: Validity, Examinee Appropriateness, Normed Excellence, Teaching Feedback, Useability, Retest Potential, and Ethical Propriety.

   The test classifications include one on Vocational Interests, one on Personal Temperament, and one on Relations With Other People in General.

3. Lake, D., Miles, M., and Earle, R. Measuring Human Behavior: Tools for the Assessment of Social Functioning. New York: Teachers College Press, 1973.

   Systematically describes and reviews 84 different instruments. It is clear and easy to use.

4. Robinson, J. P., Athanasion, R., and Head, K. Measures of Occupational Attitudes and Occupational Characteristics. Institute for Social Research, University of Michigan, P. O. Box 1248, Ann Arbor, Michigan, 48106. Copyright 1969.

   Reviews 80 test instruments grouped under various subheadings such as Career Orientation, Leadership, Occupational Values, Self-Improvement, and Self-Reliance.

   Each review includes a brief description and an assessment of the instrument as to its norms, reliability, ease of administration, etc.

CHECKLIST ITEMS 122.1 AND 122.2

TASK ANALYSIS

The most precise method for determining knowledge/competencies required of students entering a course or program is to:

1. Perform a task analysis of the terminal behaviors expected of the students at the end of the course or program;

2. Determine the tasks to be taught in the course or program;

3. Identify knowledge and competencies required for the tasks to be taught.

Knowledge and competencies identified in the above step may be sorted into those to be taught in the course and those expected of entering students. A pretest should be designed to see if students actually have the competencies. If students lack entering competencies, three alternative actions are possible:

1. Students who lack competencies would not be allowed to enter the course/program.

2. Students who lack competencies would be given remedial instruction.

3. Expectations for entering students would be reduced and the level at which training would start set at a lower level.

Figure 100-2 describes a six-step process which could be implemented in order to identify those competencies to be acquired in the program and those expected of entering students. Competencies occur at several levels; these are identified in Figure One.

PROCESS STEP	EXAMPLE
1. IDENTIFY THE JOB/SKILL FOR WHICH THE COURSE/ PROGRAM WILL TRAIN STUDENTS.	1. Auto Mechanics, Typing, etc.
2. IDENTIFY THE FUNCTIONS COMPRISING EACH JOB/ SKILL.	2. [For: Auto Mechanics] Install/Repair:
[Competency-Level I]	Engine Suspension Brakes Electrical Transmission Etc.
3. IDENTIFY SUBFUNCTIONS	3. [For: Electrical] Install/Repair:
[Competency-Level II]	Charging System Starting System Ignition System Lighting Etc.
4. IDENTIFY TASKS	4. [For: Ignition System] Analyze Engine Performance:
[Competency-Level III]	Clean or replace, and gap spark plugs Adjust, repair or replace distributors
5. ANALYZE TASK (TASK ANALYSIS TO IDENTIFY STEPS)	5. [For: Clean or replace, and gap, spark plugs]:
[Competency-Level IV]	(1) Note plug location relative to the cyclinder (2) Remove all spark plugs (3) Identify the type of plugs (4) Adjust plugs if appropriate . . (10) Clean tools and equipment
6. IDENTIFY SKILLS AND KNOWLEDGE REQUIRED	6. [For: Adjust plugs if appropriate]:
[Competency-Level V]	(1) Recognize/identify spark plug (2) Recognize/identify spark plug gap (3) Add simple numbers (4) Subtract simple numbers (5) Read written material at the level necessary to locate suggestions in manual (6) Measure length (thickness) with graduated instrument (7) Read and correctly interpret metric scale (dimension) and/or inch/foot scale (8) Read decimals to thousandths (if inches) (9) Identify millimeter.

FIGURE 100-2

RECOMMENDED PROCESS FOR IDENTIFYING COMPETENCIES

CHECKLIST ITEMS 122.1 and 122.2 (contd)

Steps 2, 3, and 4 in the recommended process are simply identifying and naming components of a job, a function, or a subfunction. The results of each step is a taxonomy (i.e., a classification) of items. Within each step there is no hierarchial relationship, that is, performing one of the functions does not depend on the prior performance of another function. The results of Step 5, "Analyze Task," is different in that regard; the results comprise a hierarchy because the task steps follow a prescribed sequence. A subordinate step cannot be performed until the superordinate step is performed. The results of Step 6 are not necessarily hierarchial.

Steps 5 and 6 identify tasks/competencies/knowledge which may either be taught in the course/program or expected of entering students. (Note: Although some competencies/knowledges identified in the example are trivial, others such as math and reading skills are not--the point to be made here is: don't reject this recommended approach to identifying competencies just because some trival skills are identified in this example).

GETTING INFORMATION FOR TASK ANALYSES

1. Observing Professionals
2. Questionnaire/Survey of Professionals
3. Literature

REFERENCES FOR TASK ANALYSIS

The following references suggest how to conduct a task analysis, what methods to use and how to interpret results.

1. Mager, R. F. and Beach, K. M., Developing Vocational Instruction. Palo Alto: Fearon Pub., 1967. Chapters 3, 5-9 describe how to conduct a task analysis for the purpose of program design. It is clear and readable.

2. Melching, W. H. and Borcher, S. D. Procedures for Conducting and Using Task Inventories. Columbus: Ohio State University Center for Vocational and Technical Education, 1973. (ERIC Document No.: ED 105 093).

   A short but comprehensive guide to task analysis. It is more technical and not as well written as Mager and Beach, but it provides more detailed directions for task analysis.

3. Boston, R. E., How to Write and Use Performance Objectives to Individualize Instruction. Englewood Cliffs, N.Y.: Educational Technology Pub., 1972.

   This short book explains how to use task analysis for further analysis toward more detailed program planning.

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The following references contain examples of task analysis from various fields.

Crawford, L. C. A Competency Pattern Approach to Curriculum Construction in Distributive Teacher Education. Blacksburg: Virginia Polytechnic Institute, 1967. (ERIC Document No.: ED 032 383).

Department of Health, Education and Welfare. Guidelines for a Dental Assisting Curriculum in the Indian Health Service. Washington, D. C.: Public Health Service (DHEW), 1969. (ERIC Document No.: VT 011 457).

Gosman, M. L. and Others. Occupational Analysis of Tasks Performed in a Medical Record Department. Interim Report Los Angeles: UCLA Division of Vocational Education, 1970. (ERIC Document No.: ED 041 148).

Henrich, R. R. and Goldsmith, K. L. Hospital Pharmacy Technician Project: Development and Validation of the Task Inventory. Interim Report. Los Angeles: UCLA Division of Vocational Education, 1970. (ERIC Document No.: ED 041 147).

Long, G. A. Clusters of Tasks Performed by Washington State Farm Operators Engaged in Seven Types of Agricultural Production--Grain, Dairy, Forestry, Livestock, Poultry, Horticulture, and General Farming. Pullman: Washington State University, Department of Education, 1968. (ERIC Document No.: ED 021 066).

Ohio State University School of Allied Medical Professions, 1972. Occupational Therapy Job Description. Development of Occupational Therapy Job Descriptions and Curricula Thrcugh Task Analysis. Report Number One. Columbus: Author, 1972. (ERIC Document No.: ED 078 170).

Rahmlow, H. F. and Keihn, S. O. A Survey and Analysis of Motor Tasks, Knowledges Associated With Work in Child Care Occupations. Pullman: Washington, State University, 1967. (ERIC Document No.: ED 021 066).

CHECKLIST ITEM 131

General teaching strategies are described in two sections: one section concerns teaching knowledge (Item 131.1); the other section concerns teaching competencies (Item 131.2). Those strategies identified as useful for teaching knowledge may also be used for teaching competencies. The reverse is also true. The dichotomy was established to indicate appropriateness rather than to set parameters.

CHECKLIST ITEM 131.1

CHECKLIST OF STRATEGIES FOR TEACHING KNOWLEDGE

Large group lecture
Discussion
Seminars with student presentations
Visiting lecturers
Interdisciplinary course with team teaching
Workshops
Conferences
Individualized and modularized programs using programmed instruction and audio tutorial courses (see Checklist Item 132.3)
Media in a conventional classroom or in a modular system: film, videotape, audio tapes, slides and others
Independent study employing library research and topic papers. May be arranged by student contract with faculty.
Student group projects
Tutoring: one teacher or student to student

REFERENCES ON STRATEGIES FOR TEACHING KNOWLEDGE

Berte, N. R., (Ed.) Individualizing Education by Learning Contracts. New Directions for Higher Education, A quarterly sourcebook, Vol. III, No. 2. San Francisco: Jossey-Bass, 1975.

A series of essays describing and giving examples of an important new teaching strategy.

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CHECKLIST ITEM 131.1

REFERENCES ON STRATEGIES FOR TEACHING KNOWLEDGE (contd)

Connolly, J. J. and Sepe, T. D. "Individualized Instruction: Are Students Ready?" pp. 30-31.

Jioia, J. "Individualized Instruction in Sociology: Myth and Fact." pp. 32-33.

Community and Junior College Journal. V.43 n.6, March, 1973

A short explanation of an alternative teaching strategy and an example of a general education course being taught in that manner.

Gooler, D. G., (Ed.). Uses of Technology in Community Colleges: A Resource Book for Community College Teachers and Administrators. Syracuse, N.Y.: Syracuse University Research Corporation, N.Y. Educational Policy Research Center, 1972. (ERIC Document No.: ED 075 028).

Strengths, weaknesses, and summaries of research on teaching effectiveness are given for a number of technologies: Computer Assisted Instruction, audio tape, film, slides, dial access, programmed instruction, learning activity packages, video cassettes, Cable TV, independent learning labs and simulations.

Jekel, J. R. and Johnson, R. E. Alternatives in Education--54 Approaches. Bismark, N.D.: Mary College, 1973. (ERIC Document No.: ED 086 613).

A number of teaching strategies presented in a very readable format and has included a description of the approach, procedure, and an example.

Mager, R. F. and Beach, K. M., Jr.,. Developing Vocational Instruction. Palo Alto, Calif.: Fearon, 1967.

Chapters 8 and 9 explain in a brief and clear fashion some techniques for looking at the content to be taught and choosing the best strategy.

North Carolina State Department of Public Instruction. Individualized Instruction in Occupational Education. Raleigh, N.C.: Author, Research Unit, 1974. (ERIC Document No.: ED 106 651).

A report of an individualized instruction system used as the main teaching strategy for occupational education programs. Samples of instructional packages, progress charts, tests and evaluation forms are included.

CHECKLIST ITEM 131.1

REFERENCES ON STRATEGIES FOR TEACHING KNOWLEDGE (contd)

Voegel, G. H. (Ed.). Using Instructional Technology. New Directions for Community Colleges. A quarterly sourcebook. San Francisco: Jossey-Bass, 1975. Vol.III, No. 1.

A series of essays describing alternative teaching strategies.

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CHECKLIST ITEM 131.2

(Refer to Aid for 131)

CHECKLIST OF STRATEGIES FOR TEACHING COMPETENCIES

Field experience, apprenticeships, internships
Laboratory work
Demonstrations
Coaching and tutoring
Role-playing
Simulation and games
Cooperative education or sandwich program
Workshops

REFERENCES ON STRATEGIES FOR TEACHING COMPETENCIES

Callahan, L. and Gillmore, V. "Cooperative Education" pp. 32-34.

Reitz, R. C. "Apprenticeship Program in Plant Mechanics" p.41. Both articles are in Community and Junior College Journal, V.44 n. 5, February, 1974.

Examples of teaching strategies for competencies.

Department of Health, Education and Welfare. Training Methodology, Part III: Instructional Methods and Techniques. An Annotated Bibliography. Washington, D. C.: Public Health Service (DHEW). Public Health Service Publication No. 1862, Part III. Available from the Superintendent of Documents, U. S. Government Printing Office, $1.00. (ERIC Document No.: ED 034 033.)

A comprehensive, annotated bibliography of references pertaining to teaching strategies for training, many of which are pertinent to occupational education programs.

Harlacher, E. L. Competency-Based Learning Systems. Kansas City: Research Academy Presentation, May, 1974. (ERIC Document No.: ED 097 087.)

A short description of a community college which organizes all learning by competencies and employs a number of teaching strategies throughout the programs.

CHECKLIST ITEM 131.3

Use of simulations, role-playing and film are thought to be effective in teaching attitudes and values. However, emperical evidence is scanty and neither a checklist nor a list of references is offered.

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CHECKLIST ITEM 132.3

MODULAR CURRICULUM AND MODULAR SCHEDULING REFERENCES

Barone, C. Using the Syracuse University Variable Credit and Continuous Registration Systems: A Handbook. Syracuse, N.Y.: Syracuse University Office of the Registrar, 1975. Available from the Registrar of the Center for Instructional Development.

A pamphlet which outlines how Syracuse University has accomodated modular curricula and modular scheduling to a traditional semester time frame.

Drake, G. A. An Analysis of the Colorado College Plan. Toledo, Ohio: Toledo University Center for the Study of Higher Education, 1973. (ERIC Document No.: ED 078 761.)

An example of modular scheduling at a 4-year college.

Kuhn, E. and Martorana, S. V. "Reorganizing Instruction: Time and Content", Community College Frontiers V.2 n.3, pp. 5-11, Spring, 1974.

Kuhn, E. and Martorana, S. V. "Of Time and Modules, The Organization of Instruction", Journal of Higher Education. V.45, n.6, pp. 430-440, June, 1974.

This article, presented in two different journals, offers a clear, concise review of different ways to organize instruction at Community Colleges. The authors give examples of new schedules and new instructional techniques being used around the country, including modular curriculum organization. Very readable!

Palow, W. P. Modularization--A Road to Relevance. Paper presented at Florida Junior College, Council of Teachers of Mathematics, October, 1973. (ERIC Document No.: ED 091 232.)

A very short paper describing a modularized program at Miami-Dade Community College.

Petrequin, G. Individualizing Learning Through Modular-Flexible Programming. New York: McGraw-Hill, 1968.

An example of modular scheduling at the high school level which shows how different teaching strategies can be accommodated in a flexible schedule.

CHECKLIST ITEM 132.3

MODULAR CURRICULUM AND MODULAR SCHEDULING REFERENCES (contd)

Russell, J. D. Modular Instruction. Minneapolis: Burgess Pub. Co., 1974.

Chapters 1 and 2 present a short but complete introduction to the components of modular instruction. Examples are given of modules from 4-year college courses. A basic reference on modular curriculum.

Slapar, F. M. "Technical Physics Tailored to Student Needs." American Vocational Journal. V.49, n.9, pp. 43-44, December, 1974.

An example of the use of modules (primarily videotape) to provide students with basic physics. The students are enrolled in a number of different technical programs at this community college.

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CHECKLIST ITEM 211

TYPES OF PLANS IN POST-SECONDARY EDUCATION

A variety of master plans exist--they are:

CAMPUS PLANS (quadrennial)
SUNY MASTER PLAN (quadrennial)
CUNY MASTER PLAN (quadrennial)
PRIVATE COLLEGES AND UNIVERSITIES MASTER PLAN (quadrennial)
REGENTS STATEWIDE PLAN for the Development of Post-Secondary Education (quadrennial with biennial "progress reports").

In addition to, and complementary with, the above master plans are the following types of plans specifically geared to Occupational Education:

AGENCY PLANS (Community Colleges and BOCES Units)
REGIONAL PLANS FOR OCCUPATIONAL EDUCATION
NEW YORK STATE PLAN FOR OCCUPATIONAL EDUCATION

The primary interrelationships of the various plans are illustrated in Figure 200-1 on the following page.

REFERENCES

The following references contain summaries of policy statements concerning the Master Plans and Occupational Plans.

MASTER PLANS

The University of the State of New York (The State Education Department).
The Regents Statewide Plan for the Development of Post-Secondary Education, Albany, 1976.

The overall plan for New York State. All master plan recommendations are reviewed and action recommended. Published quadrennially under various titles (1972 version was Education Beyond High School).

_____. Post-Secondary Education in Transition, The Regents Progress Report, 1974.

This is the most recent quadrennial progress report (on the 1972 Regents Statewide Plan). The next progress report is due in 1978 and will focus on the 1976 Regents Statewide Plan.

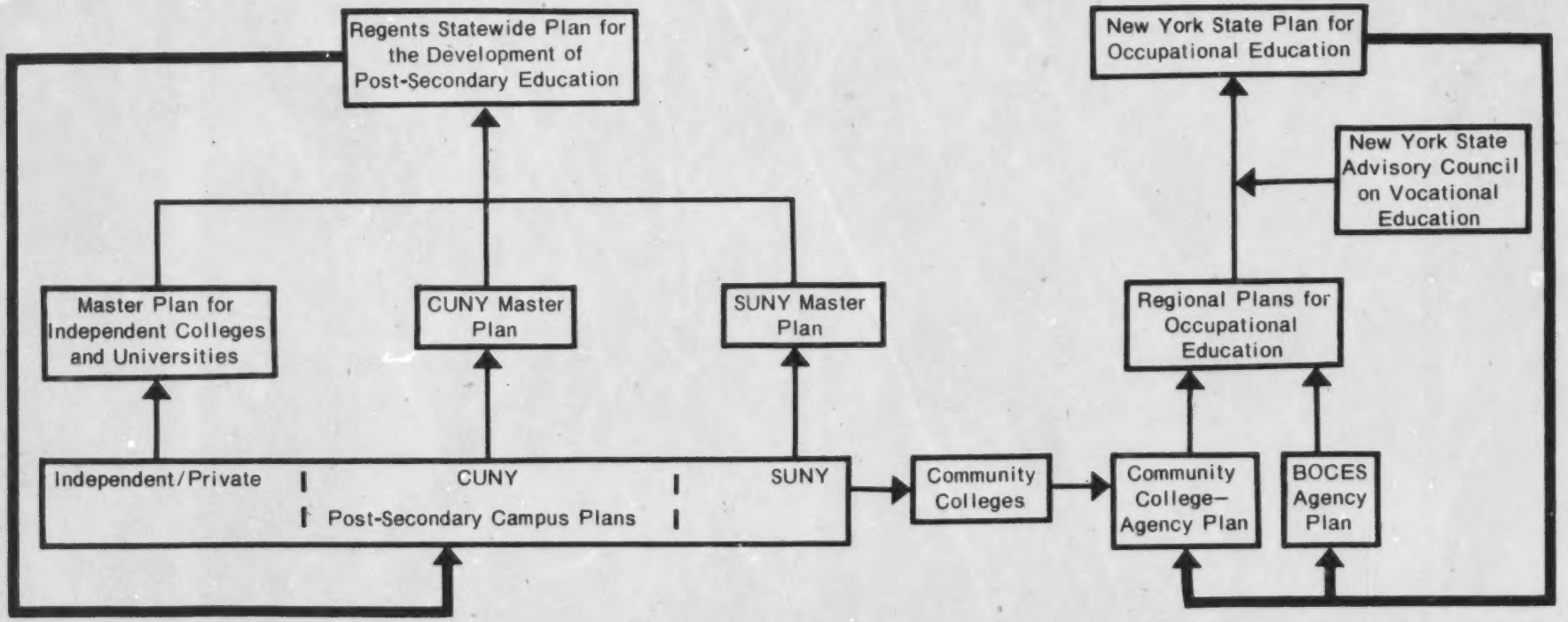
Regents Statewide Plan for the Development of Post-Secondary Education
New York State Plan for Occupational Education
New York State Advisory Council on Vocational Education
Master Plan for Independent Colleges and Universities
CUNY Master Plan
SUNY Master Plan
Regional Plans for Occupational Education
Independent/Private
CUNY
SUNY
Post-Secondary Campus Plans
Community Colleges
Community College–Agency Plan
BOCES Agency Plan

FIGURE 200-1
Development of State Post-Secondary and Occupational Education Plans

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REFERENCES (contd)

The State University of New York. The Responsive University: The Priorities of the State University of New York for the Late '70's and Beyond, Albany: June, 1976.

The 1976 SUNY Master Plan.

A new Master Plan is prepared every four years. An overview of SUNY is provided and recommendations (70 in the 1976 edition) are made regarding directions and emphasis for the next four years. Some recommendations are specifically aimed at community colleges, others are general but have implications for community colleges.

New York City, Board of Higher Education. 1972 Master Plan of The Board of Higher Education for the City University of New York, New York: The Board, 1972. Revised periodically.

Commission on Independent Colleges and Universities. Progress Report to The Board of Regents. Albany: The Commission (quadrennial).

The "master plan" for the Independent Sector.

OCCUPATIONAL EDUCATION

The University of the State of New York. (The State Education Department) Occupational Education: A Statement of Policy and Proposed Action by The Regents of the University of the State of New York. Albany, Position Paper #11, May, 1971.

This is the basic State document which addresses Occupational Education Planning. It states long-range and continuing objectives for the New York State Plan for Occupational Education.

The University of the State of New York (The State Education Department). New York State Plan for Occupational Education Part II. Albany: The State Education Department. (Revised annually).

An annual and 5-year, long-range plan for development and expansion of Occupational Education in the State. Included are demographic, educational and economic data and trends. A basic source of information of Occupational Educational Planning Regions and Occupational Education Programs in operation in the State. Summarizes employment opportunities related to Occupational Education Programs. Gives the number of persons who received training in skills and trades in public and private vocational schools.

(Part I is not revised annually. It constitutes the basis for State's eligibility for Federal funds.)

REFERENCES (contd)

New York State Advisory Council on Vocational Education Annual Report. Albany: The State Education Department. (annual)

The Advisory Council is charged by law to advise and make recommendations concerning the State's vocational education programs. Statements concerning articulation may be found in the reports.

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CHECKLIST ITEMS 212 and 212.3

The State University of New York:

The following three documents comprise a series available from The State University of New York, Office of the Provost for Vocational and Technical Education. As their titles imply they are simple lists and are useful for articulation considerations They will undoubtedly be updated periodically and the most recent should be consulted.

Associate Degree Programs Approved for SUNY Two Year Colleges. September, 1975.

List of Approved Curriculum, Option, and Sub-Option Titles Leading to Associate Degrees. September, 1975.

Certificate/Diploma Programs Approved for SUNY Two-Year Colleges. September, 1975.

New York State Office of Planning Coordination, New York State Planning and Development Regions. Albany, August, 1970. OPC Bul. #3-70.

This report gives the social, economic, demographic and topographic reasoning upon which the New York State Planning and Development Regions were constructed. There is a lack of conformity between this regional plan, Occupational Education Regions, and the New York State Employment Service Regions. However, county lines remain inviolate in all systems. Planners should check to see if a more recent version is available.

The proposed program should be compared to similar programs in the area (e.g., BOCES, high schools, public and private colleges, and Universities). The worksheet proposed below may be used to record data about programs similar to the one being proposed. Note that some of the data may be useful to answer questions found elsewhere in the Checklist.

CHECKLIST ITEMS: 212.2, 212.3 | 531 | 212.2, 212.3 | 213 | 213.1, 213.2

Institution	Name of Program	Size (Number of Graduates)	Probable Relationship With Proposed Program		Is Matriculation desirable?		Will Students Be Able to Matriculate	
			Conflict	Complimentary	To Proposed Program	From Proposed Program	Yes	No
		Input to Checklist Item 531				Input to Checklist Item 114.4		

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CHECKLIST ITEM 213

The two references given below are available from the State Education Department. They focus not on articulation between colleges but on articulation between secondary and post-secondary education.

University of the State of New York (The State Education Department) "The Articulation of Secondary and Post-Secondary Education: A Statement of Policy and Proposed Action by The Regents of the University of the State of New York." Albany: The Department. Position Paper #21, August, 1974.

_____. "Linking Schools and Colleges: An Inventory of Articulation Practices in New York State 1974-75." Albany: Bureau of College Evaluation. 1975.

Documentation of specific instances of high school--college articulation.

CHECKLIST ITEM 222

222.1 List existing courses/programs in the college which may impinge on this proposal:

Name of existing course/program	(222) Will proposed course/program Complement?	(222) Will proposed course/program Conflict?	(222.1) Replace?	(332) Share Resources With?	(222.3) Attract Students Away From?

222.2 List courses outside proposed program in which students might also enroll:

Simultaneously	As a Prerequisite	For Further Training

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INTRODUCTION

ESTIMATING THE DOLLAR COSTS OF A PROGRAM

Most proposed new educational programs, or proposed changes in existing programs, involve a stream of costs over a period of time, usually years, in one or more of the following "life cycle" categories.

Research and Development Costs-resources required to develop the program to the stage where it can be introduced into the system. For example, the time a science coordinator spends investigating a possible program, money used to hire consultants, instructional specialists and/or instructional media specialists, are appropriately classified as research and development costs.

Investment costs-costs necessary to implement the program. Equipment purchases, remodeling of existing facilities, and the costs of running a workshop to train staff are examples of investment costs. [Note: It is possible to classify some costs in more than one category. The preceeding example of a workshop to train personnel might be considered as either R&D or investment. Where you place such costs is not usually important. What is important is that you not omit them.]

Operating costs-recurring costs required to operate the program over time. Maintenance of equipment, salaries of personnel, and the cost of supplies are examples of operating costs.

Considering costs in terms of a proposed program's life cycle is useful because it helps to make certain that the full cost impact of a proposal is considered. A common error in educational cost analyses is the failure to consider time and to act as if the only costs of a new program that are important are those that occur in the first year of operation. However, the initial year may contain non-recurring "start-up" costs which should perhaps be so labeled so as not to give a distorted view of what the cost for subsequent years might be.

The worksheet which follows organizes costs according to the above "life cycle" categories.

RESOURCES PLANNING WORKSHEET-INTRODUCTION

The resources worksheet is divided into three parts. The first section asks the planner to list (in narrative form) frame factors for the program. It is essentially an extended version of Checklist Items 311 through 316.5. This section asks the planner to describe the physical, personnel and administrative requirements of the program. Ideally, these "resource frame factors" are based upon the instructional planning considerations made in the Identity Section (100) and the Students Section (400). Special attention should be paid to instructional planning considerations (130). Trade-offs in the use of available resources should be considered in the Articulation Section (200).

The second section of the worksheet requires the planner to attach dollar figures to the frame factors. Note that there are three columns for each budget line item. The first column asks for the dollar cost of existing resources which may be utilized for the course/program.* The second column asks for the cost of additional personal and physical facilities. The cost of new or additional personnel and physical facilities is usually the most important to potential funders since these costs represent the amount of money that must be raised to implement and carry through the program.

The worksheet's third section calls for estimates of where the funds to implement and maintain the program would be obtained. The last page of the worksheet asks the planner to compare anticipated costs with anticipated revenues. Following the worksheet is a list of references which provide further information on the subject of determining the costs of an educational program.

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*It may be useful to identify these costs as costs which will be borne by the institution whether the program is implemented or not.

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RESOURCES PLANNING WORKSHEET

SECTION I

DETERMINING THE FRAME FACTORS OF A PROGRAM

When the Identity (Section 100) of an educational program has been established, it is necessary to describe carefully the activities that will be undertaken to transform the conception into a reality. Planners must develop a precise description of actions which must be initiated in order to achieve the plan. This description of activities forms the basis of ascertaining dollar costs of required resources.

I. RESEARCH AND DEVELOPMENT FACTORS (non-recurring, start-up factors)

A. Will planning of this program require specific kinds of market research such as a needs assessment? If so, will external consultants be required to conduct such research?

B. Will design of this program require the use of extensive faculty time for course planning, instructional materials production, etc.? _____ If so, will this be accomplished by release time, funded summer work, etc.?

C. Will design of this program require the use of external technical specialists such as graphics or media experts to produce slides, tapes, etc.?

D. Will design of this program require the use of external consultants in curriculum design or instructional development?

E. Will design of this program require the use of extensive clerical services during the design phase for such things as typing and reproducing course manuals, instructional booklets, etc.?

II. SPACE AND EQUIPMENT FACTORS (non-recurring, initial investment considerations)

A. Does the program require new buildings or specialized facilities for housing?

B. Does the program require costly equipment or materials for instruction such as closed circuit T.V. equipment, or computerized instruction?

C. Will implementation of the program require remodeling of existing facilities such as classrooms, labs or studios?

D. Will implementation of the program place extreme burdens on existing facilities such as libraries, gymnasiums or learning resource centers.

III. OPERATION FACTORS (recurring factors required to operate the program over a period of time)

A. Instructional Considerations

1. What is the minimum faculty-student ratio necessary for this program?

2. Does the design of the program suggest or require time limitations or scheduling problems?

3. Does the use of labs or studio courses suggest the use of extended period schedules?

4. Does incorporation of cooperative education experiences suggest students will alternate semesters of work and study (implication: courses will be offered in alternate semesters)?

5. Does incorporation of modular units suggest the need to restructure course schedules within semesters?

6. What is the maximum class size possible for implementing the program's chosen teaching strategies?

B. Personnel and Support Factors

1. What educational, personal, and work qualifications should director (or program administrator) have?

2. What education, personal, and work qualifications should faculty for this program have?

3. What type of clerical and office support will be necessary to maintain this program (include considerations such as student assistance, volunteers, etc.).

4. Does the nature of the program suggest the need for additional counseling services?

5. Does the nature of the program suggest the need for special placement services?

6. Will the program attract a student population that requires special financial aid services?

7. Will the program require the support of remedial education services?

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C. Consumable Supplies and Materials

1. Will the program require an exceptional use of instructional supplies such as self-instructional booklets, consumable lab supplies, etc.?

2. Will the program require an exceptional amount of support for faculty such as continuing use of instructional development specialist, travel funds, etc.?

RESEARCH AND DEVELOPMENT COSTS (contd)

(non-recurring costs)

Costs in this section should represent one-time "start-up" costs.	*Cost (value) of existing institutuional resources	Costs of additional or new resources	Total Costs (Col.1 & Col.2)
RESEARCH AND DEVELOPMENT SUPPORT COSTS (Development Phases)			
Consultant - Number of days _____ @ daily rate of _____ =	$_____	$_____	$_____
Travel	_____	_____	_____
Workshops (For faculty training, etc.).	_____	_____	_____
ADMINISTRATIVE SUPPORT			
Special expenses incurred in obtaining funds (including travel to foundations, federal agencies, etc.).	_____	_____	_____
Other administrative development expenses (itemize)			
_____	_____	_____	_____
_____	_____	_____	_____
College Support Staff Activities			
Counseling_____	_____	_____	_____
Library_____	_____	_____	_____
Placement_____	_____	_____	_____
Remedial Work_____	_____	_____	_____
Other_____	_____	_____	_____
MISC. DEVELOPMENT AND PLANNING EXPENSES			
Office expenses (administrative) (supplies, telephone, postage, etc.)	_____	_____	_____
Office expense (faculty) (supplies, telephone, postage, etc.)	_____	_____	_____
Special expenses such as conducting a need assessment (etc.)			
_____			
_____			
_____	_____	_____	_____
TOTAL RESEARCH AND DEVELOPMENT COSTS	_____	_____	_____

*These costs represent personnel and equipment already at institutions that will be devoted to this program.

RESOURCES PLANNING WORKSHEET

SECTION II

RESEARCH AND DEVELOPMENT COSTS

(non-recurring costs)

Costs in this section should represent one-time "start-up" costs.	*Cost (value) of existing institutional resources	Costs of additional or new resources	Total Costs (Col.1 & Col.2)
PERSONNEL COSTS			
Administration			
Program Director: % of time spent in planning and development _____% times $_____ = (annual salary	$_____	$_____	$_____
Other administrative personnel (if any) Title _____ % of time____X annual salary of $_____ =	_____	_____	_____
Title _____ % of time____X annual salary of $_____ =	_____	_____	_____
Faculty			
% of time (academic year) devoted to program planning & development _____ X average annual salary of $_____ (X number of faculty involved in planning and development_____) =	_____	_____	_____
Summer salary of $_____X number of faculty involved in planning and development _____ =	_____	_____	_____
[Number of faculty involved in planning and development does not necessarily equal the number who will be involved when program is in operation]			
Clerical			
Hours of clerical support needed for administrative planning function _____X hourly wage of $_____ =	_____	_____	_____
Hours of clerical support needed for faculty planning and development function _____X hourly wage of $_____ =	_____	_____	_____
Fringe benefits for above (varies with institution-usually around 14-20% of salaries)	_____	_____	_____
TOTAL PERSONNEL COSTS	_____	_____	_____

*These costs represent personnel and equipment already at institutions that will be devoted to this program.

INVESTMENT AND CAPITAL COSTS

(non-recurring costs)

Costs in this section should represent major, one-time investment and construction costs.	*Cost (value) of existing institutional resources	Costs of additional or new resources	Total Costs (Col.1 & Col.2)
New Building Construction			
Major items such as new building construction, would of course, be explained in detail elsewhere. Include only initial costs here. Add debt retirement to operating expenses.	$	$	$
Remodeling of Existing Facilities			
Remodeling of classrooms to accommodate unique instructional needs of program - explain in detail elsewhere.			
Remodeling of laboratories or other educational facilities. Explain in detail elsewhere.			
Remodeling of offices for administrative and/or instructional staff. Explain in detail elsewhere.			
Other Major Expenses			
Major, one-time, items of teaching equipment needed for program. Itemize and if necessary, explain in detail elsewhere.			
_____			
_____			
_____			
Other major instructional needs (e.g., self-instructional carrols, laboratory equipment, etc.). Itemize, and if necessary explain in detail elsewhere.			
_____			
_____			
_____ (use additional sheets if necessary)			
Office furniture for administrative/ instructional staff (attach list)			
Office equipment (duplication equipment, typewriter, etc.) (attach list)			
Other: (attach list)			
TOTAL INVESTMENT AND CAPITAL COSTS			

Note: For all purchases or construction that will not be completely paid in single budget year, include initial investment cost only. Add debt retirement to operating budget. Add maintenance of major equipment to operating budget.

OPERATING EXPENSES

(recurring costs)

This section should represent costs for the first year of full operation.	*Cost (value) of existing institutional resources	Costs of additional or new resources	Total Costs (Col. 1 & Col. 2)
SALARIES AND WAGES			
Program Director - % of time on project _____ times annual salary of $_____ =			
[Note requirements for program administrator in frame factors]			
Other Program Administrators (if any)			
Title_____ % of time on project _____ X annual salary of $_____ =			
Title_____ % of time on project _____ X annual salary of $_____ =			
Instructional Staff			
[Note educational and experience requirements of faculty in frame factors]			
If faculty will vary by rank, salary, percent of time on project, etc., summarize on a separate sheet and include totals here.			
Number of faculty involved_____ X % of time on project _____ X academic year salary of $_____			
(FTE faculty lines and "average" FTE salary may also be used here)			
Summer compensation for faculty; explain basis of summer compensation			
_____			
Other professional staff on program payroll (e.g., instructional development specialists, etc.).			
Title_____, % of time on project X annual salary of $_____			
Title_____, % of time on project X annual salary of $_____			
Title_____, % of time on project X annual salary of $_____			
Clerical - give title (steno, typist, etc.) and full-time or partime and salary			
_____			
_____			
_____			
FRINGE BENEFITS - will vary by institution, usually 14-20% of salaries and wages			
TOTAL SALARIES AND WAGES	$_____	$_____	$_____

OPERATING EXPENSES (contd)

(recurring costs)

This section should represent costs of the first-year of full operation	*Cost (value) of existing institutional resources	Costs of additional or new resources	Total Costs (Col.1 & Col.2)
SUPPORT COSTS			
Administrative Support			
Travel	$	$	$
Office expenses (telephone, postage, supplies)			
Other administrative support costs			
Instructional Staff			
Travel			
Office expenses (telephone, postage, supplies)			
Consultants			
Other instructional support costs			
Consumable Instructional Supplies (itemize)			
Support staff not assigned to project but used by project staff and students. (This is an optional category extremely difficult to estimate)			
Library			
Counseling			
Financial Aids			
Remedial Services			
Other			
TOTAL SUPPORT COSTS	$	$	$

OPERATING EXPENSES (contd)

(recurring costs)

This section should represent costs of the first-year of full operation	*Cost (value) of existing institutuional resources	Costs of additional or new resources	Total Costs (Col.1 & Col.2)
PHYSICAL COSTS			
Space Requirements (see Addendum I & II)			
Interest on debt	$	$	$
Foregone interest on equity			
Depreciation			
Maintenance			
Overhead			
Consumable Equipment			
(Itemize)			
Equipment Maintenance (Explain, if necessary)			
Proportion of non-recurring expenses (not accounted for elsewhere) to be added to annual operating budget.			
Give details including formulas for depreciation of major equipment, etc.			
TOTAL PHYSICAL COSTS			
OTHER COSTS UNIQUE TO PARTICULAR PROGRAM UNDER CONSIDERATION (e.g., above average financial aid requirements) (Explain).			
TOTAL PROGRAM COSTS			

REVENUES AVAILABLE FOR PROGRAM

A discussion and suggestions which may be used for completing this section can be found on pages 42 through 47 of the reference cited in footnote of page 1 of this document (Posner, et al., 1975).

Institutional Revenues

FTE FUNDS
(For FTE calculation, see worksheet provided as aid to students Section 400) _____

Special FTE Funds
(Can the program draw additional state or regional FTE funds because it is oriented to a special group of students?) _____

[In the above calculations include only those FTE funds that are available to be used at the discretion of the institution or that, according to regulations, can be applied to specific program components.]

Inscitutional funds that can be absorbed by existing institutional budget. *See Column One Cost Section. _____

Institutional funds that can be freed through modification of existing programs. _____

Local Bond Issues (if applicable) _____

TOTAL INSTITUTIONAL FUNDS AVAILABLE _____

SPECIAL GRANTS

Federal funds (can a grant be obtained for the program costs or a portion of these costs?) _____

State and regional funds (can special state or regional funds be obtained to defray program expenses?) _____

Local funds (can local business or charitable organizations be tapped as possible sources of funds?) _____

Gifts and Bequests (can local individuals or agencies be pursuaded to offer gifts to the program?) _____

Other special grants (explain)
_____ _____

[Grants and special gifts might be especially appropriate to fund non-recurring research and development, and investment costs.] _____

TOTAL SPECIAL GRANTS _____

TOTAL FUNDS AVAILABLE FOR PROGRAM _____

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ADDENDUM I

SPACE UTILIZATION GUIDES

Instructor's teaching load	15 hrs/week
Department Head teaching load	6 hrs/week
Contact hrs/student/week	15
Classroom hours	9
Laboratory hours	
	24
Faculty/steno ratio (exclusive of Department Head)	7.5:1

SPACE UTILIZATION PER WEEK BASED ON 45 HOUR WEEK OF OPERATION

Room utilization, hours per week	
Classroom - 60 students or less	30 hours
Classroom - 60-120 students	20 hours
Laboratories and special purpose areas	24 hours
Station utilization (when occupied)	
Classrooms	80% minimum
Other spaces	80%

SPACE PLANNING GUIDES

Classrooms	
20 stations	18 sq.ft./student
30 stations	16 sq.ft./student
40 stations	16 sq.ft./student
60 stations	16 sq.ft./student
Lecture Halls	
120 stations	12 sq.ft./student
240 stations	12 sq.ft./student
480 stations	10 sq.ft./student
Science Laboratories	
24 stations	50 sq.ft./student
preparation and storage	450 sq.ft.
Industrial Laboratories	
24 stations	50 sq.ft./student
storage area	180 sq.ft.
Office Space (for full-time personnel only)	
Department Head (Single occupancy)	180 sq.ft.
Faculty members (Double occupancy)	240 sq.ft.
One or two secretaries in office	120 sq.ft. each
Three or more secretaries in one area	80 sq.ft. each

Source: Payne, Albert V., Administrative Factors and Actions in Initiating Two-Year Post High School Environmental Control Technology Programs, Mohawk Valley Community College, Utica, New York, January, 1972.

ADDENDUM II

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Estimating Dollar Costs of Space

The five components usually given for the dollar cost of space (Haller, 1974) are:

1. the interest on any unpaid debt
2. the forgone interest on equity
3. depreciation or annual decrease in value
4. overhead--heat, light--associated with the space
5. maintenance.

Suppose that one decision alternative involves allocation of classrooms, each encompassing approximately 1,000 square feet. To assess the dollar cost of the space, you will need to know its construction costs (say, $20.00 per square foot); its expected life, hence, its present value after depreciation (say, $80,000); the remaining amount owed (say, $60,000); the interest rate on this debt (say, 4 percent); maintenance costs, which are usually recorded on a square-foot basis (say, $.10 per square foot); and overhead, which is also typically computed on the same basis (say, $.15 per square foot). The yearly cost of allocating the five classrooms to the program under consideration is:

Interest on debt (4% of $60,000)	$2,400
Foregone interest on equity (say 5% of $20,000)	1,000
Depreciation (assuming an additional life of twenty years ($80,000 ÷ 20)	4,000
Overhead	750
Maintenance ($.10 X 5,000 square feet)	500
TOTAL SPACE COSTS	$8,650

If the classrooms are to be used only part of the time for the program, only the appropriate fractional part of $8,600 would be charged to it.

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REFERENCES

Bowen, H. R., and Douglas, C. K., Efficiency in Liberal Education. New York: McGraw-Hill, 1971.

Lists potential alternative methods for reallocating resources to alter costs and modify efficiency including shared personnel, shared facilities, better space utilization and variable class sizes.

Coombs, P. H., and Hallak, J., Managing Educational Costs, New York, Oxford University Press, 1972.

Although aimed at large scale educational cost analysis, it contains a great deal of information on behavior of educational costs and some down-to-earth suggestions on doing your own cost analysis. Extremely readable.

Haller, Emil J., "Cost Analysis for Educational Program Evaluation" in Popham, W. J., (Ed.) Evaluation in Education, Berkeley, California, McCutchan Publishing Corporation, 1974, pp. 399-450.

An excellent introduction to the notion of costs and costing procedures, as aimed specifically at determining costs of a program as opposed to total institutional costs.

Knoell, D., and McIntyre, C., Planning Colleges for the Community. San Francisco: Jossey-Bass, Inc., Publishers, 1974.

Lombardi, John, Managing Finances in Community Colleges. San Francisco: Jossey-Bass, Inc., 1973.

A general discussion of how community colleges are financed and how to cope with specific problems and issues.

Mortimer, Kenneth P., Accountability in Higher Education, Washington, D. C., ERIC Clearinghouse on Higher Education and the American Association for Higher Education, 1972.

An excellent discussion of accountability in higher education, how it differs from accountability systems in industry and government, the weaknesses inherent in any accounting systems used by colleges, and probable trends. It includes an extensive bibliography.

AIDS: STUDENTS - 400

Information for this section may be derived from at least three sources:

1. Surveys of:
   -Highschools/BOCES - Students
   -Highschools/BOCES - Counselors
2. Analysis of college's historical data to determine previous distribution of students in programs in order to project enrollment patterns.
3. Analysis of reports from S.U.N.Y. Office of Institutional Research.

Use of sources numbered two and three above are probably the most efficient ways to collect the required data. Other information sources such as field-specific professional or business associations should be considered, but are not included in this discussion.

The 1976 Regents' Master Plan (preliminary edition will be available in August 1976) will contain some projections concerning enrollment by types of institution and by Regents Regions.

The following pages contain:

1. A worksheet for recording data corresponding to questions from Student's Section of Checklist.
2. Sample survey forms for collecting data.
3. References on which projections may be based.

AIDS: STUDENTS - 400

SUGGESTED WORKSHEET FOR ORGANIZING
DATA GENERATED BY WAY OF
"STUDENTS" SECTION

Checklist Item Nos.		Full Time	Part Time
411 (421.1, 422.1)	Number of new students which the program will attract.	____	____
412	Number of internal transfers. (See Checklist Questions 222.3 and 332.1)	____	____
413 (421.2, 422.2)	Number of continuing and returning students.	____	____
414	Number of special students	____	____
420	Expected enrollment (total of above)	☐	☐
423	Expected FTE (Adjust enrollment to FTE).	☐	
431	How will students be distributed?		
	Expected enrollment (from 420, above).	☐	☐
	Day classes	____	____
	Evening classes	____	____
	Weekends	____	____
432, 433, 434	How will attrition and irregular attendance patterns affect FTE?		
	Expected FTE (from 423, above)		☐
	Less: Irregular attendance	____	
	Attrition	+____	
			-____
	Revised FTE estimate (input to Checklist Question 312)		☐

WORKSHEET (contd)

Checklist Item Nos.	
440	Estimate of number of students who will graduate annually. 1st year _____ 2nd year _____ 3rd year _____ 4th year _____
451 (451.1, 451.2)	Number of students from within district. _____ Number of students from outside district. _____ (Input to Checklist Question 511)
452 - 456	Check student characteristics which may impact on program. (May input to Checklist topics 121, 316, 320, 330). _____Socio-economic status _____Ethnic background _____Sex _____Age _____Handicapped _____Previous degrees _____Veterans _____Other_____

AIDS: STUDENTS - 400

SURVEY NO. 1

ITEMS WHICH MAY BE INCORPORATED IN A LOCAL SURVEY
OF POTENTIAL STUDENTS (AT FEEDER SCHOOLS)

Notes:
1. These items have not been validated. They are suggestions which have been logically derived. Other items may be more appropriate to specific needs.
2. Survey forms should be coded to identify school and status of respondents.
3. Access to public school students may be difficult.
4. If student survey is considered, stratified sampling techniques may be used to keep quantity of data at a manageable and cost effective level.

ITEM

1. Do you plan to attend a Community College? _____Yes _____No
2. If you enrolled in a Community College, would you be concerned with immediate employment or would you transfer to a four-year school?

   _____Immediate employment

   _____Transfer to a four-year school
3. When would you enroll? _____Next year _____In 2 years
4. Would you enroll full-time or part-time? _____Full-time _____Part-time
5. In what general program area do you intend to enroll?

   _____

   _____
6. Our college may offer the following program:
   [Paragraph describing the program: what it is, what students can do with it.]
7. Please check one of the following:
   Are you (_____as interested) (_____less interested) (_____more interested) in enrolling in this program than in the one you described in Item No. 5 above?

AIDS: STUDENTS - 400

SURVEY NO. 2

ITEMS WHICH MAY BE INCORPORATED IN A SURVEY OF
GUIDANCE COUNSELORS/INSTRUCTORS (AT FEEDER SCHOOLS)

NOTES: 1. Items have not been validated. They have been logically derived, but other items may be more appropriate.

2. A phone survey may produce quicker results than a mail survey.

ITEM

1. We are investigating the need for the following program: [Paragraph describing the program.]

2. What is your reaction to this offering?

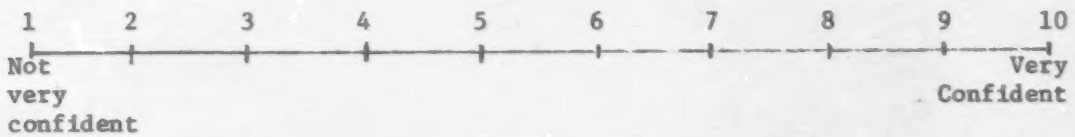
_____Positive _____Negative _____Neutral

3. Have any students in your school expressed an interest in this type of program? _____Yes _____No

4. Estimate the annual number of students from your school who would be likely to enroll in this program if implemented:

Between _____ and _____

5. Please circle a number on the following scale to indicate how confident you are of your estimate for item number four:



AIDS: STUDENTS - 400

REFERENCES

NOTE: Additional references are available in Program Planning in Two-Year Colleges: A Handbook, p. 54, available as ERIC Document ED 112957.

State University of New York, Office of Institutional Research (titles only are given since these reports are periodically updated).

Geographic Origins of Students - Tables identify 1) County, state or country of student for each community college; 2) student enrollment in SUNY units by county; 3) enrollment trends (origin only) at each community college.

Enrollment by Academic Program - Numbers of students enrolled in each community college program are identified. Date arrayed both by college and by program.

Attrition and Retention of First-Time, Full-Time Students in Two-Year and Baccalaureate Degree Programs. Attrition/Retention rates by college.

Other useful reports may become available. A liason with the office is recommended.

AIDS: EMPLOYMENT - 500

EMPLOYMENT MANPOWER PROJECTIONS

NOTE: The narrative that follows is a very broad treatment of the current state of the art of manpower analysis. A thorough treatment is available in Mangum and Snedeker's Manpower-Planning for Local Labor Markets, (Salt Lake City: Olympus Publishing Company, 1974.)

National and State Manpower Projections are very "soft", i.e., they are not to be viewed as absolutes but as indicators. Nevertheless, they are the best estimates available.

There are essentially two sources of employment projections:

1. Federal (Bureau of Labor Statistics)
2. State (Department of Labor)

These sources supply data at three levels.

1. National
2. State
3. Local (by major labor market area, primarily SMSA's*)

National, State and local occupation data are derived primarily from decennial Population Census data.

The following is a very rough outline of how National and State projections are derived.

I. National Projections

A. Industry projections: Two fairly sophisticated techniques are used: input-output and multiple regression. Input-output, probably the more important of the two techniques, involves first deriving an estimate of GNP using forecasts of population, labor force participation rates, productivity trends, and manhours worked per year. Full employment (@ 4 percent unemployment rate) is assumed. Detailed industry projections are derived by forecasting components of consumer, investment and government demand. The forecasts are converted to industry output requirements through use of inter-industry input-output relationships. Projected industry output is converted into employment requirements based on annual hours per job and output per manhour.

---

*SMSA=Standard Metropolitan Statistical Area - A Census Bureau concept for defining urban areas: a county or group of contiguous counties which contain at least one city of 50,000 or "twin cities" with a combined population of at least 50,000, and such additional contiguous counties which meet criteria that demonstrates economic and social integration with the central county or city.

AIDS: EMPLOYMENT - 500

B. Occupation projections: These are derived by using an industry-occupation matrix.* This matrix is simply a percent distribution of 420 occupations in each of 200 industries. The matrix for the forecast year is derived by considering past changes in the proportional makeup, by occupation, of industries and anticipated technological changes in each industry. The occupation distribution for each industry is applied to the industry forecasts in order to get projections for the occupations.

II. State Projections

A. Industry projections: In each industry, New York's proportion of national employment was calculated in a given base period (e.g., 1958-71) and projected to 1980 by a regression equation. The 1980 projections were then multiplied by the national projection for the given industry. (Because New York's proportion of employment has been decreasing over time in the overwhelming majority of industries, New York's growth in most industries is less than that of the nation and projected overall growth for the State is also far less than national growth.)

B. Occupation projections: The projected 1980 matrix was applied to industry projections. Each matrix proportion for 1980 in a given industry was derived as follows:

$$\text{State proportion in 1980} = \frac{\text{National proportion 1980}}{\text{National proportion 1970}} \times \text{State proportion 1970}$$

III. Local area projections

Projections were derived in a manner similar to those for the State.

Publications which report the above projections are:

National Matrix - Tomorrows Manpower Needs, Vol. IV. (U.S. Department of Labor, Bureau of Statistics) Bulletin No. 1606, Revised 1971.

State Occupation-Projections - Manpower Projections, New York State 1970-1980 (State of New York Department of Labor, Division of Research and Statistics) Publication B-204 January 1975.

Local Occupation-Projections - Manpower Projections Binghamton Area 1970-1980 (State of New York, Department of Labor, Division of Research and Statistics) Labor Research Reports 1975-No. 17, September, 1975.

NOTE: Binghamton area selected as an example, other local areas are available.

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*This matrix is sometimes referred to as the National Matrix". The word matrix is used because the data is reported by rows and columns.

Projected Job Openings may be determined by adding replacement needs to the employment change. Figure 500-1 is a rough approximation of how this is accomplished.

Replacement needs are reported in N.Y.S. "Labor Research Reports" for the State and Standard Metropolitan Statistical Areas. Replacement needs may account for as much as 70-89% of the job openings.

SUMMARY

Making Manpower projections is a complicated affair. Using them is relatively easy, but their validity must always be suspect.

For further assistance in understanding manpower data a Labor Market Analyst may be contacted. There is such an analyst for each Standard Metropolitan Statistical Area in the State. As of June, 1975, the following list was accurate:

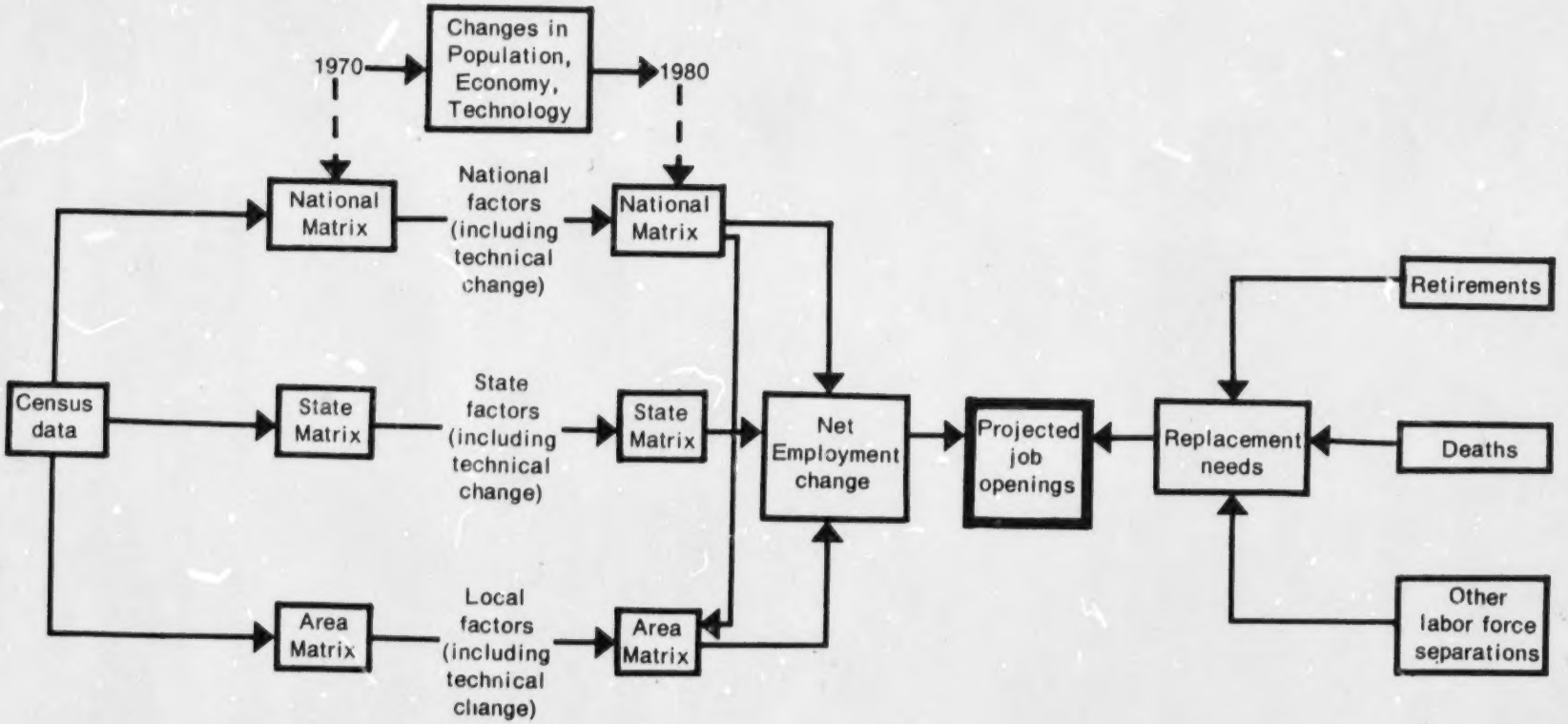
District	Analyst	Telephone Number
Albany	Dave Nyhan	(518) 457-6199
Binghamton	Vincent F. DeSantis	(607) 773-7954
Buffalo	George Smyntek	(716) 854-4242
Long Island	Sonia Kornriech	(516) 938-9100
Rochester	Bill Colonie	(716) 546-1770
Syracuse	Bruce Pierce	(315) 474-7271
Utica	Bill Lloyd	(315) 797-6120
Suburban	Richard Kappus	(914) 716-1090
New York City	Irma H. Siegel	(212) 488-6778

Program planners should not hesitate to use Manpower projections in their estimates as long as they recognize the limitations of the projections.

Data from local employers may be collected as well, and may be useful for validating estimates derived from official projections; however, manpower planners suggest - and experience has shown - that data collected at the local level is frequently less reliable than broader based statistics. A small percentage error in locally collected data may have considerably more impact on local planning than a large percentage error in State and National data.

Manpower planners suggest that if local employers are surveyed, they should not be asked to estimate future employee requirements "out of the blue." Rather, the experts suggest that employers be asked to react to estimates made by the local planner which are connected to a specific sociological/ technological innovation.

Further tips for planning training programs are presented in the current Manpower Projections, New York State (1970-1980, p. 25). This publication is available from the Department of Labor, Division of Research and Statistics, 2 World Trade Center, New York City. In addition, a series of publications is now available for each SMSA in the State. They are specifically directed to planning training programs for local markets.



*Future plans call for a state base-year matrix based on employer occupation data.

Net Employment Change → Projected Job Openings ← Replacement Needs

FIGURE 500-1

PROCESS FLOW FOR DETERMINING PROJECTED JOB OPENINGS

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The Division of Research and Statistics is in the process of making 1974-75 projections for the State and major labor market areas which will supersede the 1970-1980 projections. The Division is considering making manpower projections available for smaller geographic areas. Regular contacts with labor market analysts may be useful to keep abreast of new formats.

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CHECKLIST ITEM 512

Suggested worksheet format:

Occupation	D.O.T. Number	Special Requirements (Input to 114, Reconcile with 450)

REFERENCES

The following references are useful for identifying contact points from which to obtain data about specific occupations:

State Industrial Directories, Inc. 1976 New York State Industrial Directory. New York: Author, 1976 (Annual). Price $85.00.

Lists manufacturers alphabetically and by county, and by products.

Fisk, Margaret (Ed.), Encyclopedia of Associations. Detroit: Gale Research Company, 10th ed., 1976 (Annual).

See Identity Aids (Checklist Item 112) for annotation.

CHECKLIST ITEM 513.1

To identify growth trends a consultation with a local 'Manpower Analyst' is recommended. See "Background Information" for their identity/location.

CHECKLIST ITEM 520

DEMAND FACTORS - Data may be arrayed as follows:

Checklist References	521	522	523		524		
Year	Current Job Openings	Projected Job Openings	Graduates likely to find employment		Graduates likely to leave region		Excess Grads. (May have implications for adoption)
			%	No.	%	No.	
1976							
1977							
1978							
1979							
1980							

Recommended Data Source for above table:

521 - State Statistics or Local Survey.

522 - State Statistics or, for very limited boundaries, State Statistics adjusted by some justifiable local factor.

523 - Best guess estimate based on trends and local employer survey.

524 - Historical records at college.

Misc.- CETA Manpower Plan and large industries with market of interest. (See references given for Checklist Item 512.)

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CHECKLIST ITEM 530

STRATEGY FOR DETERMINING SUPPLY FACTORS

A series of well-placed phone calls will probably lead to specific information required for this Topic Area. Possible starting points may be S.U.N.Y. - Office of Insitutional Research (518-474-3456), state chapters of national/industry associations*, which may estimate number of new people entering the market, and the Center for Educational Statistics (202-245-8511) (phone number at publication date). The latter office annually publishes a table: "Earned Degrees Conferred", which does not normally include two-year colleges; however, two-year college data is published on occasion.

CHECKLIST ITEM 540

Validating and promoting requires direct contact with employers through visits or surveys. Company presidents are recommended above personnel officers since they would have a better picture of the company's "health". Promotional aspects refer to the possibility of the program planner "selling" the proposed product (graduates).

*See reference in aids for Checklist Item 112.

REFERENCES

The following are selected references from the U. S. Department of Labor and the New York State Department of Labor. Other references are cited in Program Planning in Two-Year Colleges: A Handbook, p. 64, available as ERIC Document ED 112 957.

U. S. Department of Labor, Bureau of Labor Statistics (publications may be ordered from: 341 Ninth Avenue, New York, New York 10001).

Tomorrows Manpower Needs. Five bulletins which describe national manpower projections and their use as a tool for developing State and area manpower projections.

a. Bulletin 1606 (Vol. I, Feb. 1969) Developing Area Manpower Projections. 100 pp., Price - $1.00.

b. Bulletin 1606 (Vol. II, Feb. 1969) National Trends and Outlook: Industrial Employment and Occupational Structure. 121 pp., Price - $1.25.

c. Bulletin 1606 (Vol. III, Feb. 1969) National Trends and Outlook: Occupational Employment. 50 pp., Price - $0.55.

d. Bulletin 1737 (Vol. IV, Revised 1971) The National Industry-Occupational Matrix and Other Manpower Data. Price - $2.00.

e. Bulletin 1769 (Vol. V) Research Report on Manpower Projection Methods.

"Occupational Outlook Quarterly." A brief update to Occupational Outlook Handbook (which is also recommended). Contains 'thumbnail sketches' of Trends and Prospects for major occupations as well as in-depth reports for a few selected occupations/fields.

New York State Department of Labor, Division of Research and Statistics (Publications are available from: Two World Trade Center, New York, New York 10047)

Manpower Projections: New York State 1970-1980. Pub. #B-204, 55 pp., Jan. 1975 (Annual). Explains projection of National Industrial-Occupational Matrix data. Formulas used to convert such data to the state level are given. Short-term projections (1 to 2 years) are developed.

Manpower Projections: 1970-1980. "Area Labor Research Reports," Annual Reports compiled for each SMSA* and other areas in New York State. Similar in format to State projections. Short term projections (1 to 2 years) are developed. Average annual job openings and total employment by occupation are projected.

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*SMSA explained in "Background Information", p. 88 of this document.

REFERENCES (contd)

Annual Planning Reports
Available for all SMSA and some other areas beginning 1976. Appears to be the best compiliation of manpower data available from the State. Recent historical data, trends and job outlooks are provided for each area.

CHECKLIST TOPIC AREA 610

Internal Support for Program Planning

At least five factors inhibit internal support, not only for a specific program, but also for program planning in general. While systematic program planning may be adopted by several individuals at a campus, it is unlikely that the college-wide acceptance of a common approach to planning will occur until the "inhibiting factors" are addressed and reconciled.

One factor is a combination of poor communication and ill defined roles. A second factor is interdisciplinary competition and desire to maintain the status quo. These factors appear to be compounded by a third: the existence of clearly defined policy procedures for program proposal evaluation which hinders college-wide utilization of a specific planning system. A fourth factor is the lack of faculty skills relative to the systems approach and to planning. The fifth is the lack of a review mechanism for existing programs.

Each of the above hindrances to adoption of a planning system is described below and a "heuristic" is proposed for its resolution.

Communication/Role Definition

Administrators frequently express a desire to have faculty involved in initiating and planning programs. However, most faculty perceive their own role in program planning to be minimal. They believe programs are initiated by administrative fiat. This perception may not be far from wrong, since field studies have revealed administrators to be more responsive than faculty to the planning system described by the Checklist.

These opposing views by the two principals in planning introduce dissonance to the educational system. The dissonance is expressed as suspicion/frustration by faculty and resignation by administrators. The conditions are exacerbated by faculty reluctance to assume yet another non-teaching role and by administrative impatience with the faculty's minimal response and generally unskilled attempts at planning.

The foregoing is not intended to suggest that administrators and faculty are "at each others throats." Indeed, the prevailing attitudes reflect mutual respect. However, the dissonance concerning planning roles remains.

> Heuristic #1: Colleges need to establish an informal mechanism to encourage internal communication outside of such formal structures as curriculum committees and faculty senates. The goal of such a mechanism would be to stress cooperation in planning and to identify non-traditional approaches to improve the quality and viability of instruction at the colleges.

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Interdisciplinary Competition and Status Quo

Protection of turf and status has long been a program planning problem in education. Within a discipline it takes the form of one faculty or group recommending a new package for the same product. Between disciplines it's characterized by the powerful, established academic group squelching program ideas generated by the less powerful.

Heuristic #1 is offered as an approach to the problem with emphasis on internal articulation; a must for successful, efficient and effective planning.

Policy Procedures

Most colleges have some clearly outlined procedure for program proposal generation and approval; however, the procedures are typically characterized by two shortcomings. Either the older, more established disciplines are gatekeepers to the process, or the procedures are structured in a way that emphasizes the administrator's planning role by stressing planning skills which many faculty lack. In either case the procedures strengthen the previously described hindrances. Faculty in general are intimidated by the amount of effort required in an unfamiliar area and specific faculty realize they cannot successfully propose a non-traditional program.

> Heuristic #2: Colleges need to re-examine their policies concerning program proposal and adoption and attempt to liberalize that structure in order to encourage greater faculty participation.

Faculty Skills

Underlying the above hindrances to systematic program planning is the lack of faculty skill in the systems approach to planning. In a detailed system plan the uninitiated see great detail which they translate as added, trivial tasks. Faculty frequently cannot view the planning system as a more efficient way of doing an old task better. Instead they see more work. Similarly, the concept of a feedback loop by which to alter previous decisions is perceived by many to be more of a theoretical concept than one with practical implications.

> Heuristic #3: To increase faculty planning skills, in-service training in the use of planning and the systems approach is advisable.

Planned Evaluation

At some colleges it is evident that faculty have no clear idea of what to plan and therefore a planning system is of academic interest only. The idea of using the Checklist to plan/evaluate existing programs needs to be emphasized. A planning system can quickly become a more meaningful tool if it is used to examine current programs.

Planned Evaluation (contd)

There is a major hurdle to this concept however. Faculty appear to view evaluation as a dirty word implying judgment to eliminate a weak product. The idea of evaluation to improve a product or process seems alien.

> Heuristic #4: Colleges need to stress evaluation as a means to improve instruction rather than a way to condemn instruction. A mechanism to periodically review and revitalize existing programs should also be established.

Summary

The five factors identified may be more complex than described and the proposals for their resolution may be too pat; further, additional factors may exist. The intent is to call attention to the existence of such factors in order that the matter of internal planning support may be placed in perspective. Identification of these factors suggest that there are issues to be addressed prior to the issue of college-wide adoption of a particular planning approach.

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CHECKLIST TOPIC AREA 610

Suggested Worksheet to Record Specific Internal Support

Checklist Item	Support	Opinions/Comments	Positive	Negative
611	General Support			
	Administrators			
	Faculty			
	Students			
612	Levels of Support			
612.1	Advisory Committee			
612.2	Curriculum Committee			
612.3	Involved Faculty			
612.4	Administrators Deans			
	President			
	Others			

CHECKLIST ITEM 621

Suggested Worksheet to Record General External Support

Institutions	Opinions/Comments	Positive	Negative
Educational			
BOCES			
Private			
Public			
Non-Educational			
(e.g., hospitals)			

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CHECKLIST ITEM 624

Suggested Worksheet to Record Employer Support

(See Checklist Items 541 and 111.2)

Employer Name	Number of Jobs	Work Study?	Field Work?	Internships

CHECKLIST ITEM 625

Suggested Worksheet to Record Specific Community Support

(Refer to Checklist Item 111.2)

Community Group	Opinions/Comments	Positive	Negative
Chamber of Commerce (Business People)			
Unions			
Regional Development Board			
Service Clubs			
Church Councils			

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CHECKLIST SECTION 700

INTRODUCTION

The Checklist is useful for planning or for evaluation. The Evaluation Section can support both functions. The following procedures are recommended:

For Planning--If a course or program is being planned, then one need not consider evaluation beyond establishing a plan for evaluation. This need not be detailed and may be accomplished by dealing with Topics 710 (Purpose) and 720 (Criteria/Standards/Indicators) only.

For Evaluation--All items in the Evaluation Section should be considered. The evaluator should not neglect to consult other, appropriate Checklist Sections. A useful strategy by which to process data for evaluation is to utilize the Reality-Based Evaluation model developed by the Cornell Institute for Occupational Education and described in Reality Based Evaluation for Two-Year College Programs: Guidebook, a 1976 publication of the Institute (ERIC Document Number not assigned at time of printing).

The following references contain excellent readings in educational evaluation:

Payne, D. A., (Ed.) Curriculum Evaluation. Lexington, Massachusetts: D. C. Heath and Co., 1974.

Taylor, P. A. and Doris, M. C. (Eds.) Readings in Curriculum Evaluation. Dubuque, Iowa: William C. Brown, Company, 1972.

CHECKLIST ITEM 711

The purpose of an evaluation may be described at two levels:

At one level the purpose is to describe, predict and/or compare.

At the most specific level the purpose may be to:

1. Fulfill an externally imposed obligation to evaluate.
2. To determine the efficiency and/or, effectiveness of a course or program in terms of student achievement and/or cost.
3. To determine the worth of a course or program in terms of content and/or outcomes.
4. To justify the existence of the course or program.

CHECKLIST ITEM 711.1

An evaluation may be specifically planned as formative or summative. A formative evaluation may be described as an on-going or occasional monitoring process, the results of which are used to modify, 1) the course/program being evaluated and/or 2) the evaluation (procedures) itself.

Formative results may be "pulled-off" at some point and be pronounced "summative" and, summative results may become formative. The first type of transformation is not likely to happen, but the second type is common if a project is carried over or if a new evaluation is begun. The words are relatively harmless; it is the intent of the evaluation which needs clarification.

CHECKLIST ITEM 711.2

The focus for an evaluation may be:

Needs Assessment

Students
- Composition
- Attitude
- Achievement

Program/Course
- Cost
- Goals and Objectives
- Content
- Methods for Instruction
- Design of Instruction

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CHECKLIST ITEM 712

The audience to whom the evaluation is to be directed has considerable impact on language, style, length, technical complexity, detail and attitude of the final report. Consider the following potential audiences and their influence on the above factors:

Students
Parents
General Public
Instructors
Local Administrators
Regional Administrators
Governmental Agencies

The evaluator should identify questions the audience expects to be answered.

CHECKLIST ITEM 712.1

Administrators may use an evaluation for the following functions:

1. Evaluation (after the fact analysis for future reference)
2. Control
3. Planning
4. Development

Identifying the administrative function being served (and the object of the function) will provide the evaluator with clues about what to include or leave out of an evaluation.

CHECKLIST ITEM 712.2

The administrative level of the audience will influence the amount of detail that should be included in an evaluation. As the audience progresses, for example, from instructors to State officials less detail is required and broader implications need to be identified.

CHECKLIST ITEM 720

Criteria are: 1) ways selected to describe a program or,
2) bases for judging a program (outcomes).

Examples of criteria:

Ways to Describe	Bases for Judgment
Kinds of students	Cost/Benefit
Materials	Goal Achievement
Goals	Impact
Activities	

Standards are: Criterion achievement, usually measured by points on some scale which may be absolute (as with some degree of achievement) or comparative (comparison to an existing criteria).

Indicators are: Pre-established levels of achievement (standards) which are accepted as satisfactory.

CHECKLIST ITEM 730

Evaluation methodology is too broad to be treated here. However, the following references collectively provide a basic treatment of the more technical aspects of evaluation. The order in which they are listed is a recommended reading sequence.

Suchman, E. A. Evaluative Research: Principles and Practice in Public Service and Social Action Programs. New York: Russel Sage Foundation, 1967

While this reference is couched in terms of social programs, it remains one of the best overviews to evaluation research. It is very relevant to education.

Barnes, F. P. Research for The Practioner in Education. Washington, D. C.: Department of Elementary School Principals, National Education Association, 1964.

A basic, simple, clear, concise coverage of educational research.

Isaac, S. & Michael, W., Handbook in Research and Evaluation. San Diego: Edits Publishers, 1971.

An extremely good reference to follow Barnes, more technical, but still readable.

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CHECKLIST ITEM 730 (contd)

Miller, D. C., Handbook of Research Design and Social Measurement, 2nd Edition. New York: David McKay Company, Inc., 1970.

Another very good handbook with a different approach and wider perspective. This handbook complements Isaac and Michael's.

The two remaining references are more technical than the above. They are recommended only if a comprehensive and thorough knowledge of research/evaluation methodologies is desired.

Kerlinger, F. N. Foundations of Behavioral Research, 2nd Edition. New York: Holt, Rinehart and Winston, 1973.

A good, thorough treatment of research. Covers basics through to advanced topics.

Darlington, R. B. Radicals and Squares: Statistical Methods for the Behavioral Sciences. Ithaca, New York: Logan Hill Press, 1975.

The obligatory statistics text, but with a difference. A fairly clear and readable treatment which assumes the reader has little or no previous statistical skills.

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